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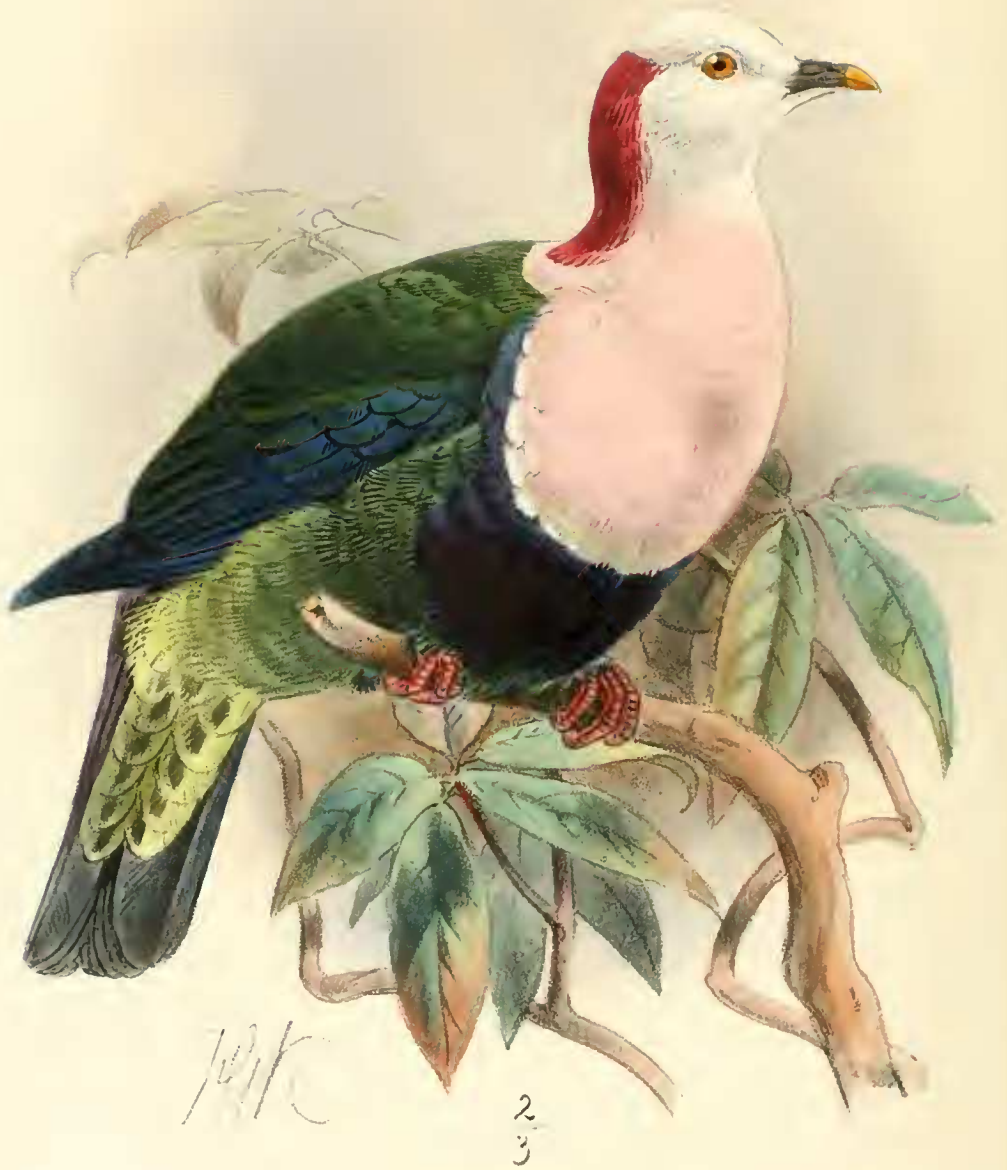
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15. * FERRETTUS LANSBERGI Buttk
 37. GEOICHLA DOHERTYI Hartert

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AN ACCOUNT OF THE COLLECTIONS OF BIRDS
MADE BY MR. WILLIAM DOHERTY IN THE EASTERN ARCHIPELAGO.

By ERNST HARTERT.

(Plates XI. and XII.).

I.—INTRODUCTION.

LITTLE did I dream when in 1888, coming from the Kinta District in the interior of Perak in the Malay Peninsula, by a most fortunate accident I met the then already well-known entomologist Mr. William Doherty, who was just leaving Thaiping for Padang Ringas, that he might eventually become one of the most energetic *ornithological* collectors of the end of the century. He travelled then without a gun, and afterwards when we made together our pleasant trip to Upper Assam he never showed any inclination to collect birds. Only about a year ago in Tring, before leaving for his present journey, he decided that he would also try to collect birds. As he was going to start for some of the most interesting places of the Dutch East Indies, Mr. Rothschild and I were very glad to hear of his plans, and we tried to instruct our friend as much as we could in the few days' time there was. We did not know to what extent the bird-collecting would be carried out, but our expectations were not too great, as we hardly thought the great field of entomology which Doherty cultivated would allow him much time for vertebrates also. Now, to judge from the rich material of birdskins he sent to the Tring Museum in less than nine months' time, and considering that they are his first attempts, it would seem that Doherty is destined to become one of the most successful ornithological collectors of our days. Part of his success is probably due to the fact that he follows our advice in searching chiefly for the less conspicuous little forms, which are passed over by many of the collectors, and to the truly astonishing amount of special ornithological knowledge he acquired, and which enables him to look out for the more interesting forms in their proper places.

II.—ON BIRDS FROM EAST JAVA.

(With footnote on a new genus by the Hon. Walter Rothschild.)

Doherty's first trip in 1896 was one of about two weeks to *Mount Arjuno*, an enormous old volcano in the eastern part of Java, south of Surabaya, which he ascended to the top. He writes: "Birds are very scarce on the top of Arjuno, and the weather was dreadful. I send only about sixteen species taken from 8300 to over 10,000 feet, the upper part of the mountain from 10,000 to 11,000 feet having produced nothing. I was camping in a hut in a valley, called Lali Jiwo, 8300 feet high, the highest building in Java, and collected up to the summit of Arjuno, 11,000 feet, and the crater of Welirang, 10,000 feet, where I got some of the best birds. I am sorry to say that some of them do not seem to be really high-elevation species, but may have come from below, as *Aethopyga mystacalis* and *Buchanga cineracea*, but some must be very rare."

I give a full list of these birds, as we know really very little of the exact altitudes and localities of many of the Javan birds, and as there are some rare and new species in this first little bird-collection of Mr. Doherty.

These birds were all collected in January.

1. *Merula javanica* (Horsf.).

Mount Arjuno at 8000 and 8300 feet. Wings in three adult *males* 125, 125, 128 mm. See Bittikofer's notes on this bird in *Notes Leyden Museum*, XV, p. 107 (1893). I have here retained, for the sake of convenience, the generic name "*Merula*" for this bird, though I do not now believe that there is any scientific foundation for that genus.

2. *Cettia montana* (Horsf.).

Differs from *C. oreophila* Sharpe from Kina Balu in Borneo in having a shorter tarsus and being less brown above. Differs from *C. serbokmi* Grant of Luzon in having a much more olive and less rufous tail, wings, and forehead, from *C. cantillans* and its allies in being smaller and more of a dark olive colour.

It is dark brownish olive above from the forehead to the tip of the tail. Below whitish, with a brown wash along the sides of the body and across the middle of the breast. Wing-quills deep brownish olive, with narrow brown margins to the outer webs, and whitish borders to the inner webs. Under wing-coverts white. In the rather full and broad wing the fourth, fifth, sixth, and seventh primaries are almost equal and longest. Wing: ♂ 53, ♀ 49 mm.; tail: ♂ 57 (♀ not measurable on account of moult); tarsus 21; culmen 14 mm.

One ♂ from an elevation of 7500, one ♀ from between 9000 and 10,000 feet, on Mount Arjuno, East Java, in January 1896.

This is the *Sylvia montana* of Horsfield. It is quite omitted from the *Catalogue of Birds*, and the only mention I can find of it is that it is quoted, without explanation, as *Cettia montana* (Horsf.) in Whitehead's *Exploration of Kina Balu*, p. 258. The type of Horsfield's *S. montana* is in the British Museum, and it is evidently the same as the bird from Arjuno, so I think it the best course to accept Horsfield's name, to avoid synonyms, though one would be fully justified to do away with Horsfield's name altogether, and to doubt the identity of the skin in the British Museum with Horsfield's type, as the description of the underparts ("olivacea-testacea") is totally wrong. This is what Mr. Grant wrote me about the species, and I have, besides, examined the specimens myself:—

Cettia montana (Horsf.).

Sylvia montana Horsfield, *Trans. Linn. Soc.* XIII, p. 156 (1821).

Although no mention of this species is made in the *Catalogue of Birds*, Vol. V., there is, in addition to Horsfield's type, a second example in the British Museum collected by Wallace in 1861 and marked "♀. West Java." In the type the shape of the wing is as follows: first primary quill much shorter than the second; second much shorter than the third, which is about equal to the tenth; sixth slightly the longest. In Wallace's specimen the wings and tail are in moult, but the shape of the wing appears to be similar to the above. In both specimens the whitish eye-brow stripe, commencing above the lores and extending above the ear-coverts, is well marked; the middle of the throat and breast pale whitish buff, inclining to whitish on the belly; the sides of the chest and breast, the sides, flanks, and under tail-coverts brownish buff; the upper parts, including the wings and tail, dark brownish olive; and the cheeks and sides of the throat are similar, but the basal

part of the feathers inclines to whitish buff, giving these parts a suffused brownish buff appearance.

The type of *C. montana* (Horsf.) measures : total length 5.1 inches ; wing 2.2 : tail 2.25 ; tarsus 0.88.

The *male* type of *C. oreophila* Sharpe measures : total length 4.8 inches : wing 2.1 : tail 2.25 ; tarsus 0.95.

Both these species are most nearly allied to *Cettia seebohmi* Grant (cf. *Ibis*, 1894, pp. 507, 508). As in that species both have the sixth primary quill longest ; but *C. seebohmi* is easily distinguished by its rufous wings and nearly white underparts.

W. R. OGILVIE GRANT.

3. *Pomatorhinus montanus* Horsf.

Several skins from elevations of from 8000 to nearly 10,000 feet. In all these the white stripe behind the eye is narrower than in nearly all the skins in the British Museum, and does not fully join the white feathers in front of the eye. These same peculiarities are visible in examples from Bali. If more material with exact localities becomes available it may turn out that Java is inhabited by several forms of this species.

Stasiasticus * gen. nov.

It is only with great hesitation that I create a new genus for this little bird, but there seems no help for it, as its structure does not agree with that of any other form known to me. It resembles very much the genus *Androphilus* Sharpe, but differs from it in having much smaller and feebler legs and feet, in having twelve, not ten, tail-feathers, and a somewhat differently shaped wing. I should have united it with *Pseudotharralvus* Grant (*Ibis*, 1895, pp. 448, 449), if it had not so considerably smaller and feebler legs and feet and a quite differently shaped wing. It is also, in my opinion, not very far from *Cettia* (Seebohm, *Cat. B. Brit. Mus.* V. p. 133), a genus of which I believe that it is wrongly placed in the *Catalogue of Birds*, the structure of its wing, the number of tail-feathers (ten), the eggs, and the rich plumage of the rump suggesting a place among the "*Timeliidae*." It differs, however, from *Cettia* in having twelve (not ten) tail-feathers, and no bristles on the gape.†

* *στασιαστικός* = seditious.—E. H.

† When discussing with Mr. Hartert the affinities of the new Java bird I was struck with the apparent similarity of it and of some of the allied genera with *Sphenocæus*, a genus which, in my opinion, belongs to the same group of *Timeliidae*, and which cannot stand very far from *Pseudotharralvus* and *Stasiasticus*, the latter, however, being widely separated from it by the shorter, broader, and more rounded tail, and the less powerful feet. While investigating these questions I found that only the New Zealand species of *Sphenocæus* have ten tail-feathers, the African ones not. The African species, besides having twelve tail-feathers, have the operculum over the nostrils bare of feathers, while it is feathered in the New Zealand ones : the outer webs of the tail-feathers are fuller and more connected, while they are very lax and separate in the species from New Zealand, and have a longer and stronger wing. There is, therefore, no doubt that *Sphenocæus* is not only placed wrong in the key given by Sharpe (*Cat. B. Brit. Mus.* VII. p. 93), but that it is more reasonably divided into two genera, as Sharpe would have done if he had counted the tail-feathers of the African *Sphenocæus* and noticed the other differences. The generic name being founded on the African species, it becomes necessary to create a new name for the New Zealand group, which I propose to call

Bowdleria gen. nov.

in remembrance of Dr. Bowdler Sharpe's invaluable *Catalogue of the Timeliidae*.—WALTER REICHSCHILD.

In this new genus the bill is shorter than the head, the nostrils in front of the feathers at the base of the bill, and protected by a membrane, but apparently (unless damaged by a string) rather open in front. The wing is short, round, and soft. The first primary is of about half the length of the second, the second a little more than three-quarters of the third, the fourth, fifth, and sixth subequal and longest, the seventh very little shorter than the sixth, the following ones gradually shorter; the secondaries as long and shorter than the second primary. Plumage rich and soft: the upper and under tail-coverts full, broad, soft, and long, nearly or quite half as long as the tail. Tarsus longer than toes; tarsus covered with large scutellae, which in one of the two specimens are more fused on the upper part. Tail graduated; rectrices broad, soft, and somewhat pointed at the tips.

4. *Stasiasticus montis* sp. nov.

♂. Above dark olive-brown with a rufous tinge, more visible on the back, upper wing-coverts, and outer edges of quills: tail more olive. Feathers of chin and upper throat white with blackish bases and tips, those of fore-neck blackish with whitish fringes; breast and abdomen white along the middle. Sides of neck grey; sides of breast and abdomen olive-brown. Under wing-coverts dusky with dirty white borders. Under tail-coverts brown with white borders, the basal ones slightly tinged with rufous olive. L. t. ca. 155 mm.; al. 55; caud. 66; rectr. exter. 33; tars. 20; culm. 13—14.

Two specimens, both marked ♂, from between 9000 and 10,000 feet, on Mount Arjuno.

5. *Sitta azurea* Less.

Shot at 3000, 8000, and 9000 feet. *Male* and *female* do not differ if the birds before me are properly sexed. If they are, then the birds described as "*females* and immature birds" by Gadow, *Cat. B. Brit. Mus.* VIII. p. 357, are all immature birds, and not adult *females*.

6. *Aethopyga mystacalis* (Temm.).

At 3000 feet.

7. *Aethopyga eximia* (Horsf.).

At 9500 feet.

8. *Chalcoparia singalensis* (Gm.).

One *female*, 3000 feet. Throat very dark.

9. *Zosterops javanica* (Horsf.)

At nearly 10,000 feet.

10. *Zosterops citrinella* Bp.

Two *males*, shot at 8000 and 10,000 feet above the sea, belong to *Z. citrinella* of Timor, but they are also the same as *Z. neglecta*, Seeholm in *Bull. B. O. C.* I. p. xxvi., and Whitehead, *Explor. Mt. Kinabalu*, App. p. 261 (1893).

Z. neglecta has never been properly described, but only diagnosed as follows: "Similis *Z. palpebrarum*, sed magis olivascens, et macula anteoocularem obscuriore

distinguenda." Whitehead tells us that he collected it about 5500 feet high on the spurs of Bromo, an active volcano in Eastern Java. Had I not been able, thanks to the trouble Mr. Grant took for me, to see the types in the Seebohm collection, I could certainly not have known whether my birds were the same as *Z. neglecta* or not, but after having seen them I find that they are the same species, though the types are in worn plumage and not very old. They are greenish above, like *Z. palpebrosa*; rump and upper tail-coverts lighter and more yellow. In front of the eyes is a distinct yellow spot, and from the base of the bill to the eye a black line. Chin and throat yellow, more golden on the upper throat. Abdomen and flanks very pale brownish, lighter and with an indistinct yellow line in the middle. Under tail-coverts pale yellow. Wing 57—58 mm.; tail 41—42; tarsus 16; culmen 13.

11. *Pycnonotus bimaculatus* (Horsf.).

At 8000 and 9000 feet elevation.

12. *Dicrurus cineraceus* (Horsf.).

One from 3000 and one from between 9000 and 10,000 feet.

Oates in *Fauna Brit. Ind., Birds*, I. p. 318, says that this species occurs from the Brahmaputra to Northern Tenasserim, that it "reappears" in Java, Lombok, and Palawan, and that it is "not found" in any portion of the Malay Peninsula. This statement may be, I am afraid, premature, as our knowledge of the ornithology of the Malay Peninsula is not yet sufficient for such theories. The Tring Museum possesses one skin, collected by Col. Bingham in the Thoungyeen Valley, which seems to agree with our typical Java birds.

13. *Dissemurus platurus* (Vieill.).

At 3000 feet. The racquets are distinctly twisted, and it is in my opinion impossible to unite this bird with the large Indian form, but it seems next to hopeless to clear up the synonymy of these forms. The present form may perhaps with more safety be called *D. formosus* Cab. Cf. Sharpe, *Cat. B. Brit. Mus.* III. p. 258; Hartl., *Novit. Zool.* I. p. 476, etc.

14. *Pericrocotus miniatus* (Temm.).

One young *male* at 5500 feet.

15. *Grancalvus larvatus* (S. Müll.).

Between 9000 and 10,000 feet. Both sexes. Sharpe's description of his supposed *male* in *Cat. B.* VI. p. 11, is that of a young *male* or a *female*, and the sexes are *not* alike, the *male* having the whole throat black, the *female* not (Hartert, *Ornis*, 1891).

16. *Tephrodornis virgatus* Sw.

3000 feet.

17. *Stoparola indigo* (Horsf.).

♂, 3000 feet.

18. *Muscicapula westermanni* Sharpe.

Between 9000 and 10,000 feet.

19. *Rhipidura euryura* S. Müll.

At 3000 feet (Büttik., *Notes Leyden Mus.* XV. p. 91). Genus *Neomyias* Sharpe, *Cat. B. Brit. Mus.* IV. p. 342.

20. *Collocalia linchi* Horsf. & Moore.

At 8000 feet.

21. *Gecinus puniceus* (Horsf.).

At 3000 feet. Hargitt, *Cat. B. Brit. Mus.* XVIII. p. 65, has remarked that specimens from the Malay Peninsula, Sumatra, and Borneo have "the orbital region less dusky and the sides of the face and neck of a paler green." This I find not only to be true, but in addition to it I find that the back is more of a *yellowish* green, and the rump much more golden. I therefore think the Java form must be separated as *Gecinus puniceus typicus*, while the birds from Malacca, Borneo, and Sumatra (type) may be called

Gecinus puniceus observandus subsp. nov.

22. *Chotorhea javensis* (Horsf.).

3000 feet.

23. *Cyanops armillaris* (Temm.).

3000 feet. These two barbets are named in this way in the *Catalogue of Birds* (Vol. XIX., Shelley), but I do not consider this generic separation useful or convenient, nor is there sufficient reason for it, I believe.

24. *Ptilinopus porphyreus* (Temm.).

1824. *Columba porphyrea* "Reinw." in Temm., *Pl. Col.* 106.

1827. *C. roseicollis* Wagl., *Syst. Av. Columba*, No. 27.

Mount Arjuno, 3000 feet.

In *Cat. B. Brit. Mus.* XXI. p. 75, Count Salvadori rejected the name *porphyrea* on account of there being a *Columba porphyracea* "Forst." published in 1821; but the two names are different enough, I think, to avoid confusion.

III.—LIST OF THE BIRDS OF BALI.

Doherty writes from Bali, March 12th: "Last night we arrived here from Sumba in a thoroughly exhausted state, partly from hard work under unusually hard conditions, and partly from a storm, the most tremendous I have ever weathered, which made it very difficult for us to get away from Sumba, owing to the surf, and which pursued us almost through Lombok Straits." In April he writes, amongst other things: "I thought Bali would be a great success, and a nice, pleasant, easy place, where we would all get strong. Instead of that, we never have had such constant and varied sickness. Travelling was difficult and dear, and there was no food to be bought. The people hate us all, I think, and in my whole stay I succeeded in buying just two ducks and five young chickens. The ducks cover the land, you know—queer things that walk quite upright. Both Ram Persad and I on different occasions met tigers face to face. There were hardly any butterflies.

though the season should have been right, and the country was beautiful—fine forest of enormous trees, the largest I have seen in the East, I think. Of the birds about one-half are from low country, and the other half from the mountains, mostly from a place named Gitgit, from 2000 to 4000 feet.” With regard to the birds collected in Bali, he writes: “I imagine that the Balinese fauna is very much smaller than the Javanese; many whole genera of conspicuous forms, which one cannot easily overlook, not extending so far East. The problem regarding Bali is, of course, how many forms of the Timor group extend so far West, and whether these forms are the remains of an original fauna of Australian affinities, or are merely immigrants from Lombok, etc. The ancient stratified rocks of Southern Lombok seem to be continued across the large table-topped island of Penida, in Lombok Straits, to the peninsula of Badong, in S.E. Bali, where cockatoos are found, though not commonly. Besides the Balinese birds sent, I also shot *Corvus* (*Corone*) *maerorhynchus* and the magnificent *Aquila* (*Neopus*) *malayensis*, but did not think them worth sending. Of a *Motacilla* we got eight *females* (two sent), but never a *male*.”

The following list is the first list of Bali birds ever published, so far as I know, as Wallace stayed in the island not more than two days, and collected there only a few birds.* This list is therefore particularly interesting, and it is sufficiently large to allow some comparison with the Lombok list, which will follow thereafter.

The very careful notes on the colour of the eyes, bill, feet, etc., of the birds have in nearly every case been copied verbatim, and added in signs of quotation.

From all we can see, the “sexing” is done with the greatest care.

The Bali collection was brought together in March and April.

1. *Geocichla rubecula* Gould.

♂ ad. Bali, low country. “Eyes deep amber; bill black; feet pale brownish horn-colour; claws dark brown” (W. Doherty). ♂ juv. in first plumage, but wing-quills and rectrices evidently already moulted. Top of the head and back brown, with rusty shaft-stripes; rump and upper tail-coverts uniform brown; chin and upper throat pale rusty; feathers of the chest, breast, and abdomen pale rusty rufous, with bases and tips blackish; under tail-coverts white, blackish at base.

Geocichla rubecula Gould has hitherto only been known from Java. It differs from *G. citrina* of India in being smaller (wing of the Bali skin 110 mm.), of a darker grey above, of a very much deeper rufous on the head and below. Perhaps the white patch on the upper wing-coverts is also larger. The *male* from Bali is like

* I am much obliged to Mr. Wallace, who most kindly gave me the following list of the birds collected by him in Bali on June 13th and 14th, 1856, which I publish here, using his own names. They are *Copsychus amoenus*, *Oriolus horsfieldi*, *Megalurua rosea*, *Chrysomitris titya*, *Sturnopastor julla*, *Ploceus hypoxanthus*, *Munia punctularia*, *Ptilotis limbata*.

A skin of the latter species from the Gould collection has been enumerated in the *Catalogue of Birds*, IX, p. 237, as collected in Bali by Mr. Wallace, but as this author (*Malay Archipelago*, I, p. 203) expressly says that *Meliphagidae* were not found in Bali, I supposed an error with regard to the skin in the Museum, and wrote to Mr. Wallace for an explanation, and this is what he most kindly answered me: “I am very glad you wrote to me about the *Ptilotis limbata*, because I seem myself to have overlooked the fact that I found it in Bali. The reason must be, I think, that I only obtained one specimen there, and by some mistake of my agent it got misplaced from my private collection (which was afterwards placed in the British Museum), and was bought by Mr. Gould. I find in my original notes that *Ptilotis limbata* was obtained by me both in Bali and Lombok, and specimens from both localities should have been kept in my private collection. When I came home, not finding the species among my skins from Bali, I must have forgotten the fact, and thus made the mistake you refer to in my *Malay Archipelago*.”

specimens from Java, and indeed of a very deep rufous colour, perhaps even deeper than most of the Java birds.

I have been inclined to consider *G. rubecula* as merely a subspecies of *G. citrina*, but it can perhaps just as well stand as a species. *G. innotata* Blyth, from Burma, on the other hand, seems to deserve not more than subspecific rank. Cf. Seebohm, *Cat. B. Brit. Mus.* V. pp. 174 and 176; Hartert, *Ornis*, 1891 (p. 2 of article "Ueber eine kleine Vogelsammlung," etc.).

2. *Pratincola caprata* (L.).

Both sexes from the low country. ♂ ad. "Iris deep amber; bill and feet black." ♀. "Iris deep brown."

3. *Phylloscopus borealis* (Blas.).

These birds were still common in March in the low country. They are quite typical. I think, but one of them is a perfect giant, with the wing fully 76 mm., while the other five skins have their wings only 64 to 72 mm. long, the larger ones evidently being *males*. "Iris deep brown; feet greenish olive."

4. *Copsychu saularis amoenus* (Horsf.).

Both sexes from the low country. An immature *male* from Bali, of this form, was collected by Wallace, and is in the British Museum. The specimens from Bali are pure *amoenus*, quite black below, except some white tips to the under tail-coverts and a few white feathers on the sides of the vent. The three outer rectrices are nearly quite white. "Iris dark brown."

5. *Enicurus leschenaulti* (Vieill.).

♂. 2000 to 3000 feet. "Iris very deep brown; bill black; feet pinkish white."

6. *Pomatorhinus montanus* Horsf.

Three skins, from 2000 to 3000 feet. They are exactly like those from Mount Arjuno in East Java. See *antea*, p. 539. "Iris pale yellow; bill pale orange; culmen black near the base; feet dark greenish."

7. *Turdinus (Trichostoma) sepiarius* Horsf.

2000 to 3000 feet. "Iris light red-brown; feet dull slate-colour; maxilla blackish; mandible pale slaty grey with dark line below."

8. *Brachypteryx leucophrys* (Temm.).

An adult *female* and a young *male*, between 2000 and 3000 feet. The young bird has rusty spots to the centres of the feathers above, the feathers of the breast rusty with dark margins.

9. *Cyanoderma melanothorax* (Temm.).

Mgiothera m., Temm., *Pl. Col.* II. pl. 185; *Cyanoderma m.*, Sharpe in *Notes Leyden Museum* VI. (1884); *C. m.*, Vorderm. in *Tijdschrift Nederl. Ind.* 1885, p. 338.

Two *males* of this rare bird were shot in Bali, one in the low country, one between 2000 and 3000 feet. "Iris dark red-brown; bill black above, bluish below:

a large blue naked patch on each side of the neck." This latter character is very well visible in the skins. While the skin is whitish in other places of the body, these bare patches are slaty black in the skins. It is partly on this peculiarity that Count Salvadori founded his genus *Cyanoderma*, the "type" being *C. erythropterus*, which has also a dark blue patch of skin on the side of the neck. Much more is this found in *Macronus ptilosus*, and it seems suggestive of being blown up at times. This blue patch of skin is not found in *Micornis* proper, and the bill in the latter is less straight and the nostrils differently shaped and much more open. It is therefore advisable to separate *Cyanoderma* from *Micornis*. On the other hand, the Indian species *ruficeps*, *rufifrons*, and *pyrrhops* have no bare blue patch on the neck, and agree in the bill and nostrils more with *Cyanoderma* than with *Micornis*. They are best separated as *Stachyridopsis* Sharpe (see Oates, *Fauna Brit. Ind. Birds* I.), but the three genera *Micornis*, *Cyanoderma*, *Stachyridopsis* are closely allied and must be placed close together. With regard to Dr. Vorderman's description of his specimen from Mount Salak, it must be said that the black spots on the side of the neck do *not* join those of the crop-region, but are widely separated, part of the skin between being naked and blue. Otherwise Vorderman's description is very good.

10. *Orthotomus sepium* Horsf.

Low country. ♂. "Iris very pale reddish brown; feet of the same colour."

11. *Prinia familiaris* Horsf.

Common in the low country. "Eyelids red; feet pale reddish; bill black."

12. *Parus atriceps* Horsf.

1 ♀ ad., 1 ♂ juv., 2000 to 3000 feet and low country. ♀ ad. "Iris very dark brown; bill black; commissure brown; feet pale slaty blue." In every respect like *Parus atriceps typicus* from Java. The young bird is tinged with yellow on the abdomen.

13. *Dicaeum flammeum* (Sparrm.).

Met with in the low country.

14. *Dicaeum trigonostigma* (Scop.).

A single *male* from between 2000 and 3000 feet. It is somewhat pale below, but this is probably only an individual character.

15. *Cinnyris pectoralis* (Horsf.).

Low country and 2000 to 3000 feet. "Iris deep brown; bill and feet black."

16. *Anthreptes malaccensis* (Scop.).

In the low country and between 2000 and 3000 feet. The *females* (two) are grey above, like the Eastern form (*A. m. chlorogaster*), but they are in abraded plumage and some new feathers are greenish. The *male* is not at all like the Eastern form, but quite like *A. m. typica*.

17. *Arachnothera affinis* (Horsf.).

2000 to 3000 feet. "Iris dark brown; bill blackish, paler, and somewhat reddish below; feet pale purplish reddish."

18. *Zosterops fallax* Sharpe.

Between 2000 and 3000 feet. "Iris light brown; feet greenish yellow; soles pale orange."

19. *Criniger gularis* (Horsf.).

Low country and 2000 to 3000 feet. "Iris scarlet; feet rufous grey; beak slaty blackish, pale horn-colour below." The *males* have considerably larger beaks and longer wings.

20. *Pycnonotus analis* (Horsf.).

In the low country. "Iris dark brown; bill and feet black."

21. *Aegithina tiphia scapularis* (Horsf.).

Common in the low country. "Iris pale yellowish; feet slaty blue; bill slaty blue, darker on the culmen."

22. *Motacilla flava* L.

Two from the low country.

23. *Mirafrja javanica* Horsf.

One *male*, low country. In rather abraded plumage. It may possibly be *M. parva*?

24. *Ploceus manyar* (Horsf.).

Not rare in the low country. ♂ ad. "Iris umber-brown; bill nearly black; feet pale brown, slightly reddish."

25. *Munia oryzivora* (L.).

Low country. "Iris scarlet; bill basally purple-pink, terminally bluish horn; feet and eyelids pale purple-pink."

26. *Munia maja* (L.).

Low country and between 2000 and 3000 feet. Common. "Iris very deep brown; bill pale blue; feet slaty blue."

27. *Uroloncha leucogastroides* (Horsf. & Moore).

2000 to 3000 feet. "Iris deep brown."

28. *Calornis chalybea* (Horsf.).

Several skins from Bali, 2000 to 3000 feet, gave me considerable trouble. They are somewhat dark in colour, have very small beaks, the culmen measuring only 19 mm., the bill from the tip to the beginning of the nostril 11 mm., the wing 95 to 98 mm. They have much smaller bills than any of the specimens before me from Sumatra, the Malay Peninsula, Cachar, and the Natuna Islands (these latter having the largest beaks), but they agree with a skin collected in Java by Messrs. Geisler. There is no doubt that *C. chalybea affinis* Hay is a good subspecies, though connected with *C. c. typica* of Java by many intermediate forms.

29. *Gracupica tertia* sp. nov.

♂ ad. *Gracupica* capite, collo, gastræo toto subcaudalibusque, remigibus ad basin, tectricibus primariis, basi apicibusque rectricum (duabus mediis paullum modo), subalaribus albis; notæo schistaceo-griseo, remigibus rectricibusque nigris, secundariis caudaque, aeneo splendentibus. L. t. ca. 210 mm.; al. 131; caud. 89; culm. 25; tars. 24 mm.

One single *male*, Bali, low country.

This excellent new species differs from *Gracupica melanoptera* (Daud.), an inhabitant of Java, in having the entire back, rump, upper wing- and upper tail-coverts slaty grey instead of white. There is also a mixture of grey on the flanks, and the feathers on the sides of the body and the lower abdomen have grey bases.

30. *Eulabes javanensis* (Osbeck) *typicus*

At 2000 to 3000 feet. "Beak orange, yellow at the tip: feet and wattles yellow" (W. D.).

31. *Artamus leucogaster* (Valenc.).

2000 to 3000 feet.

32. *Dicrurus cineraceus* (Horsf.).

Low country and 2000 to 3000 feet. "Iris scarlet; beak and feet black."

33. *Dicrurus longus* Bp. (?).

There are several skins of a *Dicrurus*, very much like *D. ater* Herm. from India, but evidently much smaller, with shorter tail and wings, although all the skins are moulting, and it is, therefore, not worth while to give detailed measurements. If, as I have no doubt, the Java bird differs from *D. ater* of India, the name *D. longus* must stand for it, as there is no reason at all why *D. macrocerus* of Vieillot should "pertain to the Java bird alone." The Bali birds belong most likely to the form inhabiting Java. Cf. Walden, *B. Burma*, p. 129; Sharpe, *Cat. B. Brit. Mus.* III. p. 246. The iris of the Bali specimens is dark red-brown; bill and feet black.

34. *Chibia bimaensis* (Bp.).

Both sexes from low country. ♀. "Iris deep brown; bill and feet black." This is one of the invaders from the Timor group into the Baliuese fauna.

35. *Oriolus maculatus* Vieill.

♂ ♀. 2000 to 3000 feet and in the low country.

36. *Crypsirhina varians* (Lath.).

In the low country. "Iris bright light blue; bill and feet black." Another specimen: "Iris pearl-white, transparent bluish towards the pupil."

37. *Lanius bentet* Horsf.

A good series from the lowlands. "Iris dark brown; bill black; base of mandible pale." Like specimens from Java. It seems that Sumatran specimens are mostly (or all?) paler rufous on the rump and upper tail-coverts.

38. *Lanius superciliosus* Lath.

Low country.

39. *Pachycephala grisola* (Blyth).

An evidently very old pair from the low country. The outer webs of the primaries very greyish. "Iris deep brown; bill black; feet slate-blue."

40. *Hemipus obscurus* (Horsf.).

In the low country and between 2000 and 3000 feet. "Iris dark brown; bill and feet black."

41. *Lalage timoriensis* (S. Müll.).

Quite a series of this species from the low country. It is one of those forms of the Timor group which, regardless of Wallace's line, trespass into the Javan group, to which Bali zoologically belongs. "♂ ad. Iris dark brown; bill and feet black."

42. *Graucalus javensis* (Horsf.).

Low country and at about 2000 feet. One specimen marked ♂ and one marked ♀ do not differ, except that the latter has some whitish fringes to the feathers of the rump and upper tail-coverts, and the lores dark slaty grey, while they are much darker, almost black, in the *male*. One example, sex uncertain, has the abdomen narrowly banded with grey, the lores ashy grey. "Iris rich brown, or light reddish brown; bill and feet black." The Bali specimens do not differ from those from Java.

43. *Pericrocotus exsul* Wall.

Low country and 2000 to 3000 feet. ♂. "Iris dark brown; feet and bill black." ♀. "Iris dark brown; feet and bill black."

44. *Pericrocotus peregrinus* (L.).

Low country, common.

45. *Muscicapula hyperythra* (Bl.).

2000 to 3000 feet. ♂. "Iris deep brown; beak black; feet pale pinkish."

46. *Muscicapula westermanni* Sharpe.

♂. 2000 to 3000 feet. "Iris very dark brown; bill and feet black."

47. *Siphia elegans* (Temm.).

Mount Arjuno, at 3000 feet. Under tail-coverts nearly but not quite white; lower abdomen white in the middle. The skin mentioned by me in *Ornis*, 1891, is perhaps an immature *male*.

48. *Rhinomyias pectoralis baliensis* subsp. nov.

♂ and ♀ ad. Very similar to *Rh. pectoralis typicus* from Borneo and Sumatra, but the whole upper surface distinctly less rufous, more with a greenish olive hue, the rump without any rufous wash, ear-coverts paler and more greyish. Wing 77—79 mm.; tail 64—65. “Iris dark brown; bill brownish black; feet pale purplish.” Juv. With rusty spots like most young flycatchers.

Bali, low country and 2000 to 3000 feet.

49. *Hypothymis azurea* (Bodd.).

Low country and 2000 to 3000 feet. “Iris deep brown.”

50. *Cryptolopha trivirgata* (Temm.).

An adult *male*, from 2000 to 3000 feet. “Iris dark brown; feet slaty, soles pale orange; bill black; mandible reddish below.” This specimen is perfectly similar to *C. trivirgata* from Java, though the wing is rather long, measuring fully 61 mm.

51. *Culicicapa ceylonensis* (Sw.).

Three specimens. 2000 to 3000 feet.

52. *Rhipidura javanica* (Sparrrn.).

Low country and 2000 to 3000 feet. “Iris dark brown; bill and feet black.”

53. *Eucichla cyanura* (Bodd.).

Not rare in the low country. ♂ ad. “Iris deep brown; bill black; feet slaty grey.” ♀ ditto. The ground-colour below of this *female* is not white, as described in *Cat. B. Brit. Mus.* XIV. p. 446, but yellowish buff, and the throat is more white. The young bird is of a duller brown above; the feathers of the crown are blackish, with rusty centres; the underparts dull brown. “Iris dark brown.”

54. *Macropteryx longipennis* (Rafin.).

♂ ad., shot in the low country. “Iris dark umber-brown; feet blackish; bill black.” Wing 174 mm.

55. *Caprimulgus affinis* Horsf.

Four *females* and one immature *male* from the low country. ♀ ad. “Iris deep brown; bill reddish brown, with blackish tip; feet dull reddish.”

56. *Gecinus vittatus* (Vieill.).

Low country and 2000 to 3000 feet. “Iris dull red; maxilla black; mandible ochreous, tip blackish; feet dirty greenish.”

57. *Chrysocolaptes strictus* (Horsf.).

♀ ad., low country. “Eye scarlet; maxilla brown, with distinct transverse dark lines; base, commissure, and mandible dirty yellowish green; feet green.”

58. *Tiga javanensis* (Ljung).

An adult *female*. "Iris moderately dark red-brown." A young *male* in fullest moult, shot in the low country. "Iris dark brown; feet bluish; maxilla mostly black; mandible bluish white." This is one of the few species which were shot and preserved by Wallace on his memorable visit to Bali. The bill seems a little larger in these birds than in skins from Borneo before me.

59. *Dendrocopus analis* (Horsf.).

A series from the low country, quite like the Java birds. ♂ and ♀. "Iris dark red-brown; maxilla pale slaty grey; mandible slaty grey in the middle, whitish on the sides."

60. *Thriponax javensis* (Horsf.).

♂, low country. "Iris pale yellow; maxilla black; mandible blackish at tip, whitish horn-colour towards the base."

61. *Merops philippinus* L.

Low country.

62. *Melittophagus leschenaulti* (Vieill.).

Common in the low country.

63. *Alcedo ispida bengalensis* (Gm.).

One *female*, low country. "Iris deep brown; feet coral-red; maxilla black; mandible red; claws black." This specimen is rather bright bluish above, almost as blue as *A. ispidioides* Less. It seems almost fully to agree with *A. ispida* var. *taprobana* Kleinschmidt, *Ornith. Monatsber.* II. p. 126, and is very closely allied to *A. ispida floresiana* (Sharpe), *Cat. B. Brit. Mus.* XVII. p. 151. In fact these birds seem to bridge over to *A. ispidioides* Less.*

64. *Alcedo meninting* Horsf.

Three fine specimens from the low country. Two, marked ♂, have the cheeks blue, while the third, *also marked* ♂, has the cheeks chestnut-rufous. It is evidently younger, as its bill is much shorter; beak with the tip pale, *but the rest black*; the bands on the head are greenish blue, not deep blue as in the two others; the back of a much paler blue. This last specimen has on the label: "Beak black, tip whitish; feet pale orange; iris deep amber-brown." The other two *males*: "Beak black, extreme base dark red; feet and claws coral-red; iris deep brown." †

* From the material now in the Tring Museum it seems evident that *A. ispidioides* is not more than a subspecies, connected with *A. ispida bengalensis* by intermediate forms. Skins from Sambawa (Guillemard coll.) agree in every respect with the bright bird from Bali, which seems to me inseparable from the very remarkable *A. ispida* var. *taprobana*, which is not rare in Ceylon; nevertheless *A. ispida bengalensis*, the usual paler Indian form, is also not uncommonly found in Ceylon.—WALTER ROTHSCHILD.

† It is this species, *A. meninting* Horsf., and not *A. beavani* (if the latter is more than a subspecies!), which extends to Celebes, whence we have a number of skins. The specimens enumerated by Sharpe in *Cat. B. Brit. Mus.* XVII. p. 161, at the end of the list of specimens of *A. beavani*, seem to be *A. meninting*, and were probably enumerated on p. 161, instead of on the foregoing page, by a mistake.—WALTER ROTHSCHILD.

65. *Ceyx innominata* Salvad.

In the low country. ♂. "Iris dark brown; bill and feet coral-red." ♀. "Feet pale orange; maxilla dusky with orange tip." This *female* has the inner secondaries somewhat darker and the wing 1.5 or 2 mm. shorter than the *males* from Bali. I do not see signs of immaturity in any of them.

66. *Halcyon sanctus* Vig. & Horsf.

Bali, low country. "Iris dark brown."

67. *Halcyon chloris* (Bodl.).

Low country. Quite typical, though with rather much white on the occiput.

68. *Halcyon cyaniventris* (Vieill.).

A ♂, shot in the low country. "Beak vermilion; iris dull brown; feet scarlet."

69. *Xantholaema australis* (Horsf.).

In the hills between 2000 and 3000 feet. "Iris dark brown; feet greenish, soles ochreous; bill black."

70. *Xantholaema rosea* (Dumont).

In the low country, not rare. "Iris dark brown; bill black; feet orange."

71. *Cyanops armillaris* (Temm.).

♂ ♀, shot at 2000 or 3000 feet. "Iris pale yellow; feet greenish; bill black." These two birds have the forehead deeper orange than the three Java birds in the Tring Museum, but it is doubtful whether this is a constant character or not.

72. *Cyanops lineata* (Vieill.) *typica*.

Not rare in the low country. "Iris pale brown; skin round eyes bright ochreous; feet ochreous, soles whitish; bill pale reddish corneous."

73. *Anthracoceros convexus* (Temm.).

Low country. ♂. "Iris dull umber-brown; feet slate-blue; skin round eye rather greenish; beak yellowish horn-colour, forepart of casque rather darker shaded."

74. *Cacomantis merulinus* (Scop.) and *C. threnodes* Cab. & Heine.

Both these forms, the pale and small *C. merulinus*, with the grey of the head and throat distinctly separated, and the larger and darker *C. threnodes* of Cabanis & Heine, from Bali, low country as well as 2000 to 3000 feet. Whether they are the same species or not, or different stages, I cannot say; but I must say that the explanation given by Shelley on pp. 269, 270, of Vol. XIX, of the *Cat. B. Brit. Mus.*—*i.e.* that *C. merulinus* inhabits drier countries, while *C. threnodes* frequents localities with a greater amount of rainfall—is not satisfactory, as both are found in the same places. I should not wonder if they turned out to be species after all.

A *male C. merulinus* has the "iris scarlet; bill blackish above, pale reddish below; gape orange; feet ochre-orange, claws black." A large *C. threnodes*, also a *male*: "Iris red-brown inwardly, paling outwardly; eyelid bright ochreous; feet ochreous, claws blackish."

75. *Surniculus lugubris* (Horsf.).

♀. ad. 2000 to 3000 feet. "Iris dark brown; feet very dark slaty blue; bill black." Wing 128 mm.

76. *Cuculus intermedius* Vahl.

♂. Low country. "Iris ochreous yellow; eyelids lemon; maxilla black; mandible horn-colour with blackish tip; feet ochreous, soles rich ochre, claws darker." Wing 210. Rather long-winged, but undoubtedly *C. intermedius*.

77. *Centropus javanicus* (Dumont).

An immature *male*, rather pale *above*, but otherwise typical: shot in low country.

78. *Phoenicophaes (Rhinococcyx) curvirostris* (Shaw).

Not rare in the low country. ♀. "Beak bright yellowish green; lower mandible and base of commissure black; iris bright ochreous; space round eye rich scarlet; feet slaty blackish." Exactly like Javan specimens.

79. *Palaeornis alexandri* (L.).

Specimens from the low country. ♂. "Iris pale yellow; bill orange-red; feet greenish."

80. *Glancidium castanopterum* (Horsf.).

♂, 2000 to 3000 feet. "Eye bright yellow; bill greenish, yellowish at tip; feet greenish yellow."

81. *Phodilus badius* (Horsf.).

One *female* from the low country. It is like one from Malacca in the Tring Museum, while one from Sikkim is very much larger. The bird is described from Java. Doherty describes the feet as dirty brownish white, the iris as deep brown.

82. *Treron (Osmotreron) griseicauda* Gray.

Low country and up to 3000 feet. ♂ ad. "Iris orange; skin round eye yellow; bill yellow, basally bluish green; feet beet-red." ♀ ad. "Eye orange, skin round it bluish green; beak terminally pale yellow, basally dark bluish."

83. *Carpophaga williami* sp. nov.

Carpophaga similis speciei *C. lacernulata* dictae, sed capite supra saturate grisescente-vinaceo, collo pectoreque summo concoloribus, gula vinacea. Al. ♀ 194, ♂ 207 mm.

Hab. Bali.

A *male* and a *female* of this fine new pigeon have been sent by Mr. William Doherty, who collected them between 2000 and 3000 feet in Bali. He describes the eye as "dark red-brown; feet magenta; beak black." The top and sides of the head are deep greyish vinous, paler on the forehead; sides of the head also slightly paler. Chin pale vinous with a slight greyish tinge. Fore-neck and breast greyish vinous, a little more greyish than the head; abdomen paler and a little more vinaceous. Thighs grey with only a faint vinaceous tinge. Under tail-coverts chestnut. Rest of upper parts dark brown with a slight greyish and metallic greenish gloss, slaty and somewhat purplish on the rump. Tail above like the back, tips dusky grey for about 43 mm., a little darker at the edges. Tail below much paler, tips almost whitish. Under wing-coverts dark slaty grey. ♂. Wing 207 mm.; tail 160; culmen from end of feathering to tip 19; tarsus 26, feathered for two-thirds; middle toe without claw 30 mm. The *female* is like the *male*, but a little smaller (wing 194 mm.); top of head and hind-neck deeper vinous. Named in honour of my friend William Doherty.

I first thought that the name *Ducula concolor*, Bonaparte in *Compt. Rend.* XLIII. p. 836 (1856), was referable to this species. I wrote to Professor Reichenow for particulars about the type of *D. concolor*, which the author said he had seen in the Berlin Museum, but I was informed that no specimen of a pigeon in the Berlin Museum under that name was to be found, nor was there a specimen answering the description. As Bonaparte's description is insufficient and not clear, and as he says it came from the same country as *C. lacernulata*, i.e. Java, his name cannot be referred to any species with certainty, and *D. concolor* must for the present remain with a query among the synonyms of either *C. lacernulata* (where it has been placed by Salvadori, *Cat. B. Brit. Mus.* XVI. p. 215) or *C. williami*.

84. *Ptilinopus albocinctus baliensis* subsp. nov.

Mr. Doherty sent three skins from Bali, shot in heights of 2000 to 3000 feet, in April. They differ from the type of *P. albocinctus* in the British Museum in having the wing a little shorter, the upper surface and especially the greater wing-coverts with a purplish coppery gloss, the back just behind the grey of the neck with a greenish bronzy gloss. All these characters are found in *P. albocinctus typicus*, of which I have a large series before me now, but only in immature individuals. I see no reason to assume that the three birds from Bali are immature, and therefore think that they belong to a slightly differentiated, and perhaps a little degenerated, form of *P. albocinctus*. Wing 150—153 mm. This species was hitherto only known from Flores, but inhabits, as the collections now under my hands prove, all the islands between Flores and Java. According to Doherty the iris of the Bali form is orange-red, the feet vermilion, the beak ochreous, basally bluish. It seems to be rare in Bali, where it evidently reaches its most westerly home, and where it should rather not occur, according to Wallace's theory.

85. *Ptilinopus melanocephalus* (Forst.)

One *female* juv., shot on the coast. "Iris ochreous; feet purplish crimson."

86. *Macropygia emiliana* Bp.

Low country, Bali. "Iris successively crimson, blackish, and yellowish white in concentric rings, the crimson one being the outermost one; beak brown, dark red at base; feet dark purplish red."

87. *Macropygia ruficeps* (Temm.).

One *male*, low country. "Iris white; beak reddish brown, dark at tip; feet dull beet-red, soles dark ochreous." This specimen belongs probably to my *M. ruficeps orientalis*, described on p. 573 from Sambawa. See my remarks there.

88. *Chalcophaps indica* (L.).

Bali, from the low country up to 3000 feet. "Iris deep rich brown; beak orange; feet dark red." One fine *male* shows partial albinism, having the bases of the longer upper wing-coverts snow-white.

89. *Geopelia striata* (L.).

Low country.

90. *Turtur tigrinus* (Temm.).

Common in the low country of Bali. I cannot perceive the slightest differences in birds from Malacca to Celebes. "Eye pink-white or salmon; feet dark red, claws blackish."

91. *Turnix taigoor pugnax* (Temm.).

♀, low country. "Iris dull whitish; beak ochreous at base, paler at tip; feet dull ochreous."

92. *Gallus varius* (Shaw & Nodd.).

At 2000 feet.

93. *Tringoides hypoleucus* (L.).

Low country.

94. *Rallina fasciata* (Raffl.).

Low country.

IV.—ON THE BIRDS OF LOMBOK.

The birds from Lombok, or Tanah Sasak as it is generally called by the Malays, were collected in one fortnight in June, on the hills above Labuan-Hadji on the east coast, mostly at elevations of from 1000 to 6000 feet, chiefly between 2000 and 4000, where there was large old forest, some few from the low country near the coast. The higher parts were found "very poor in birds, and seemed not to contain anything very interesting or peculiar."

This collection is a most interesting addition not only to Mr. Rothschild's Museum, but also to our knowledge of the avifauna of Lombok. Only two Lists of Birds from Lombok have ever been published—the one by Wallace in the *Proceedings of the Zool. Soc. of London*, 1863, and one that appeared quite recently in Vol. LIV. of the *Natuurk. Tijdschr. voor Nederl.-Indië* in Batavia, 1895, pp. 327—353, by Dr. Vorderman. Wallace's list contains sixty-two species, Vorderman's fifty-one, of which twenty had not been found on Lombok by Wallace, the total of the species of the two collections being eighty-two species known. I affix an asterisk to the species not found in Lombok before.

It is remarkable that a large new *Carpophaga* was found in Lombok as well as in Bali.

Doherty could not find any confirmation of the reports that the tiger had crossed over from Bali to Lombok. This report seems to be an unfounded newspaper note.

1. *Pratincola caprata* (L.).

Met with at 4000 and 5000 feet. Both sexes iris dark brown.

*2. *Geocichla horsfieldi* (Bp.).

Six specimens of this rare thrush, hitherto only known from Java, were shot in the hills between 3000 and 6000 feet. Some are immature, and they have the subterminal spots on the head and the lanceolate spots on the lesser wing-coverts more ochraceous, the breast darker. Wing 140—145 mm. "Iris dark chestnut; maxilla blackish; mandible grey, ochreous at base; feet pale dirty brownish."

3. *Geocichla andromedae* (Temm.).

Shot at 2000 and 3000 feet, one with still a few feathers of the first plumage on the wing, one quite young. ♂ fere ad. "Iris deep brown; beak black; feet blackish."

*4. *Geocichla dohertyi* sp. nov.

(Plate XI. f. 3.)

♂ ad. *Geocichla* pileo nigro, cervice, dorso supracaudalibusque castaneis. Alis nigris, apicibus rectricum mediarum majorumque nonnullarum, speculo magno Geocichlino sic dicto albis, remige quinto et sexto pogoniis externis albo limbatis. Cauda nigra, rectricibus externis apice albo in pogonio interno. Lorix, regione malari, ophthalmica et parotica albis. Mento albido. Gutturis nigro. Pectore et abdomine albis; lateribus ochraceis, plumis maculis magnis nigris ornatis. L. t. ca. 180 mm.; al. 105; caud. 73; tars. 26—27; culm. 21.

Hab. Insulis Lombok (typus) et Sambawa dictis.

This new species resembles most *G. erythronota* from Celebes, but its entirely black head and the ochraceous colour on the sides of the body distinguish it at a glance. The *adult male* has the top of the head from the base of the bill to the hind-neck pure black, the entire back deep chestnut, lighter and more ochraceous on the rump and upper tail-coverts. The remiges are black, with the usual *Geocichline* wing-pattern,* of pure white colour, beginning on the fifth primary and reaching all over the secondaries. Most of the median and some of the greater upper wing-coverts have large white tips. The under wing-coverts are black and white. The tail is black, the outermost tail-feather on each side with a white longitudinal spot on the tip of the inner web, varying in size. Lores, feathers round the eyes, chin, cheeks, and ear-coverts white, the feathers of the chin and cheeks with narrow blackish tips, and some black feathers forming a spot immediately above and below the middle of the eye. Feathers of the throat black with white bases. Middle of the breast and abdomen and under tail-coverts white. Sides of the body pale ochraceous, all the feathers whitish towards the base and with very large black tips. Thighs white, with some dusky spots behind. "Iris brown: feet whitish; beak black, with pale base to the mandible" (W. Doherty). Wing 105; tail 73—74 mm. ♀ like the *male*, but the wing only about 100, the tail only about 69—70 mm.

The young birds are of a darker chestnut above, with paler shaftlines to the feathers, the feathers of the top of the head black, with longitudinal chestnut spots before the tip, the white everywhere more or less washed with a pale ochraceous rust-colour, the underparts all over washed with ochraceous, the breast like the abdomen and with very little black, the feathers of the sides of the body with smaller black spots, or only with broad black fringes.

This species was found in Lombok at elevations of from about 2000 to 5000 feet, where there were a good many young birds, and some of the old ones moulting. It was also found in the hills of Sambawa.

I have adopted for this bird the generic term *Geocichla*, as has been done almost universally among ornithologists since Seeborn's Monograph of the *Turdidae* in the fifth volume of the *Catalogue of Birds*; but I must confess that I do not believe that in future time his arrangements of the three genera *Turdus*, *Merula*, and *Geocichla* can be upheld. There seems to be a complete connection of *Turdus* and *Merula*, and there is hardly a character given to distinguish *Geocichla*, except the coloration of the wings, and that is almost the same in "*Turdus*" *vivicorvus* and similarly indicated in *T. mustelinus*. Unless, therefore, we can find some structural generic characters to separate the *Geocichlae*, or at least some of them, I am afraid there is no scientific reason to recognise the genus *Geocichla*.

5. *Geocichla interpres* (Temm.).

An adult *male* and a young bird were shot in Lombok, at about 2000 feet, in June 1896. Wallace had collected it long ago in Lombok. The head of the adult bird is dark chestnut, the back slaty grey. "Iris dark brown; feet pale yellowish; beak black" (W. Doherty). The young bird has the feathers on the top of the head slaty black, shafts pale, tips rufous chestnut, those of the back similar. The breast is not black as in the old bird, but rusty rufous with black tips to the

* See Seeborn, *Cat. B. Brit. Mus.* V. p. 147.

feathers ; and the abdomen, which is almost pure white in the fully adult *male*, is strongly suffused with ochraceous, and the black spots at the tips of the feathers are smaller. The white spots on the wings are suffused with ochraceous.

*6. *Brachypteryx leucophrys* (Temm.).

Common at 2000 and 3000 feet above the sea. "Iris deep brown ; maxilla blackish ; mandible blackish, tip paler ; feet slaty blue." Sexes alike, except that the *female* has the wing from 2 to 3 mm. shorter. Young spotted.

7. *Cisticola cisticola* (Temm.).

Young and old from 1000 to 6000 feet.

8. *Cisticola exilis* (Vig. & Horsf.).

♂ ad. 6000 feet. "Iris pale red-brown ; bill blackish above, reddish below ; feet pale reddish."

9. *Orthotomus sepium* Horsf.

At 2000 and 6000 feet.

10. *Parus atriceps* Horsf.

Two evidently young birds from elevations of 5000 feet have the mantle washed with yellowish green, but a fine series of adult birds since received from Mr. Everett shows that this is not a peculiarity of the Lombok birds, but merely a sign of nonage. See Gadow, *Cat. B. Brit. Mus.* VIII. p. 17. (*P. cinereus* of Wallace's list.)

11. *Dicaeum mackloti* Müll. & Schleg.

From the coast up to about 4000 feet above the sea. ♂. "Iris dark brown ; feet and bill black." ♀. "Iris dark brown ; feet black ; bill blackish ; base of mandible pale." ♂ juv. "Iris dull brown ; feet slaty brown ; bill orange, blackish at tip." No difference between specimens from Lombok and Flores.

12. *Cinnyris pectoralis* (Horsf.).

♂ at 2000 feet. "Iris dark brown ; bill and feet black."

*13. *Zosterops citrinella* Bp.

Met with at elevations of 4000, 5000, and 6000 feet. These birds agree entirely with specimens from Java (*Z. neglecta* Seeb., see *antea*, p. 510) and from Timor in the British Museum. They differ from *Z. palpebrosa* in the buffy isabelline sides of the body and a less developed black spot in the front of the eye. Originally this species was known from Timor only, but it evidently extends all over the Lesser Sunda Islands and on to Java.

14. *Zosterops intermedia* Wall.

Met with at elevations from 1000 to 5000 feet. "Iris dull golden yellow ; bill grey, much darker above ; feet slaty grey."

15. *Ptilotis virescens* Wall.

Shot at "Labuan-Hadji" and in the hills of 1000 to 2000 feet. "Iris dark brown; feet slaty grey; claws black; bill black." ♀ wing about 5 mm. shorter. See Gadow, *Cat. B. Brit. Mus.* IX. p. 248, Pl. VII.

16. *Stigmatops ocellaris* (Gould) = *Ptilotis limbata* S. Müll.

At elevations of 4000 and 5000 feet.

The adult *male* has the throat whitish grey, the fore-neck pale grey with whitish spots, the breast pale grey with white fringes to the feathers. Abdomen and under tail-coverts whitish yellow; top of the head brownish grey; lores darker. Wing 76—78 mm. The *female* has the chin and throat pale yellow, the head above washed with greenish olive, the wing much shorter, only 66—69 mm. The figure in *Cat. B. Brit. Mus.* IX. Pl. VII. is that of a *female*, not of a *male*, as supposed by the author. The young bird resembles the *female*. ♀. "Iris grey, inwardly brown; bill black; feet slaty grey."

About the occurrence of this species in Bali (where, however, Doherty did not find it), see *antea*, p. 543, footnote.

† 17. *Philemon neglectus* (Büttik.).

In the low country and at 1000 feet above the sea. "Iris bleared whity brown; skin of head and neck black; bill black; feet dark slate-colour." The Lombok birds agree with those from Sambawa, Sumba, and Flores. See Büttik., *Notes Leyden Museum* XIII. p. 213. (*Tropidorhynchus timoriensis* Wallace, *P. Z. S.* 1863, p. 486, and Vorderman, *t.c.* p. 342.)

18. *Pycnonotus analis* (Horsf.).

At elevations of 2000 feet. The *female* of this species has the wing a little shorter than the *male*.

19. *Anthus rufulus medius* (Wall.).

One *male*, shot at 4000 feet.

It seems that all the skins of the group of *Anthus rufulus* from the Lesser Sunda Islands belong to a grey form, characterised by a rather greyish upper surface, a broad superciliary streak, rather white colour below, sharply streaked breast. Wing 83—84 mm.; tarsus 26. It must either be a species, or, more likely, a subspecies of *A. rufulus*. See Sharpe, *Cat. B. Brit. Mus.* XIII. p. 577.

† *20. *Chlorura intermedia* sp. nov.

This species, or perhaps rather subspecies, is most closely allied to *Chl. hyperythra* Rehb. of Java, but the upper tail-coverts are not dull orange, but green with a slight orange wash. It is just as closely allied to *Chl. borneensis* Sharpe from Kiua Balu, but differs in a deeper tawny rufous breast, throat, and sides of head and neck, and a purer tawny rufous abdomen. *Chl. brunnei-centris* Grant, of Luzon, is smaller, and has the abdomen not only in the middle, but all over pale rufous.

♂ ad. Above dark green; crown of head blue; forehead black; upper tail-coverts with a slight orange wash. Tail black; central rectrices and outer edges of the rest dull green. Primaries black, with narrow outer edges of a yellowish green. Secondaries with green outer margins, which increase towards the middle, the innermost secondaries being nearly quite green. All the remiges with pale rufous inner edges. Below deep tawny rufous, deepest on the breast. Sides of body widely green. Wing 59 mm. The young are duller and have no black and blue on forehead and crown.

I confess that I felt somewhat uneasy about the differences of *Chl. intermedia* from *Chl. hyperythra*, but the upper tail-coverts look certainly quite different from the female of the Java species in the British Museum, and I have before me now not less than nine specimens collected by Doherty, and exactly as many sent by Everett—all from Lombok, and in all ages and both sexes—and certainly none has the upper tail-coverts orange, but green with only a very slight orange wash. ♂ juv. "Iris dark brown; feet pale reddish; beak black; mandible with yellowish white tip." Doherty shot them in the hills up to 4000 feet.

21. *Munia punctulata nisoria* (Temm.).

Common from 1000 to 3000 feet. "Iris dark brown; feet blackish; maxilla black; mandible slate-colour." Vorderman enumerates *M. punctulata* and *M. nisoria* as occurring in Lombok. This is clearly a mistake.

22. *Munia leucogastroides* Horsf. & Moore.

Met with at elevations of from 2000 to 6000 feet. Vorderman, *l.c.* p. 347.

23. *Munia wallacei* Sharpe.

Two males from about 2000 feet. "Iris dark brown; bill slate-blue; feet duller slate-colour." Wing 56 mm. (*M. quinticolor* of Wallace's list, *l.c.*)

24. *Munia pallida* Wall.

♂, 2000 feet. "Iris dark brown; bill and feet slate-grey."

*25. *Sporaeginthus flaviventris* (Wall.).

Found at elevations of 4000 and 5000 feet. "Bill scarlet; culmen broadly black; iris scarlet; feet pale testaceous."

26. *Taeniopygia insularis* (Wall.).

From the low country up to 2000 feet. "Iris scarlet; bill orange; feet pale orange." Only known from Timor and Flores. Vorderman, *l.c.* p. 347.

27. *Calornis minor* (Bp.).

Met with frequently in the low country and up to 4000 feet above the sea.

Lombok specimens are quite like those from Sambawa, Djampea, Saleyer, and Bonthain Peak in South Celebes, while the Bali bird is *C. chalybea* or a small form of it. (*Intea*, p. 546.)

28. *Dicrurus cineraceus wallacei* (Walden).

D. wallacei Walden, *Ann. and Mag. Nat. Hist.* ser. 4, v. 5 (1870). The ashy grey Drongo of Lombok has been separated by Walden from *D. cineraceus typicus* of Java, but it was not recognised as distinct afterwards. The remarkably darker tail above and below, however, distinguishes it without difficulty if compared. The difference in the colour of the tail below is almost as obvious as in *Megalopteria puella* and *poliura*, which look alike above (see Salvad., *Cat. B. Brit. Mus.* XXI, pp. 169, 170). Some of the Lombok specimens have also very long wings, but this seems to be very variable in the species. I measure the wings of the specimens now in the Tring Museum as follows: Java, 139, 134, 137 mm.; W. Sumatra, 129 mm.; Bali, 131, 135, 132 mm.; S. Tenasserim, 130 mm.; Palawan, 129 mm.; while the Lombok form has the wing 128, 129, 131, 133, 133, 135, 135, 138, 145 mm.

The distribution of *D. cineraceus typicus* is peculiar. I cannot distinguish the Palawan bird. With regard to the name, I agree with Oates (*Fauna Brit. Ind. Birds*, I, p. 311) that it is best to accept the name *D. cineraceus* (Horsf.), as Vieillot's name was based on Levaillant's "Drongris," *Ois. Afr.* Pl. 170, which, though probably the Java bird (but, as Oates seems to think, his *D. nigrescens*, which is not likely at all), is said to have come from Ceylon!

D. cineraceus (or *leucophaeus*) *typicus* extends to Tenasserim, while another form, *D. nigrescens* Oates, is found in Lower Pegu, Tenasserim, and the Malay Peninsula. A large series in the Tring Museum, collected in North Cachar by our friend E. C. Stuart Baker, are all Oates' *D. nigrescens*, as a careful comparison with Oates' types shows beyond doubt. In the Himalaya is found the darkest form, *D. longicaudatus*. This latter, *D. nigrescens*, *D. cineraceus*, and *D. wallacei* are perhaps all subspecies of one species.

29. *Chibia bimaënsis* (Bp.).

At elevations of from 1000 to 5000 feet. Wings generally distinctly longer than in (typical) specimens from Sambawa.

30. *Oriolus broderipii* Bp.

Shot at 1000 and 5000 feet. There is a great variation in colour, from yellow to orange-yellow, and also in the markings on the wings, the secondaries being largely tipped with yellow, while in one (probably an older bird) there are only narrow yellow fringes. In that same bird the primary-coverts are quite black, while as a rule they are broadly tipped with yellow. "Iris scarlet; bill purplish pink." Younger birds have the maxilla blackish.

31. *Lanius bentet* Horsf.

Shot at elevations of 2000 and 4000 feet. This is the *Lanius schah* of Wallace's list.

32. *Pachycephala grisola* (Bl.).

Met with frequently at heights of 1000 to 6000 feet. "Iris deep brown; feet slate-colour; bill black." Younger birds with rufous edges to the outer webs of the quills.

33. *Lalage timoriensis* (S. Müll.).

Lombok, at about 1000 and 2000 feet.

34. *Pericrocotus exsul* Wall.

Both sexes from 2000 to 4000 feet. ♀. "Eye dark brown; feet and beak black."

35. *Hypothymis azurea* (Bodd.).

Shot at 1000 and 4000 feet. *H. occipitalis* Vorderm., *t.c.* p. 336.

*36. *Cryptolopha trivirgata* (Strickl.).

A series from elevations of about 5000 feet. Wings 55—61 mm. "Iris dark brown; bill black; feet dusky slate-colour." Wings 2 to 5 mm. longer than in the few typical *C. trivirgata* from Java I was able to measure. A large series of Java specimens would be necessary to decide whether the size of Java birds is constant. I cannot see other differences except the length of the wings.

*37. *Muscicapula westermanni* Sharpe.

Evidently common at elevations of 4000 and 5000 feet. Both sexes and young birds sent.

*38. *Muscicapula hyperythra* (Bl.).

From heights of 3000 to 5000 feet. ♂ ad. "Iris dark brown; feet dull rufous grey; bill black." ♀ ditto.

39. *Erythromyias dumetoria* (Wall.).

At about 1000 and at 2000 feet above the sea. ♂ ad. "Iris dark brown; bill black; feet purplish slate-colour." ♀ ad. "Iris very dark brown; bill and feet as in ♂." The *female* seems to be undescribed. It is rusty brown above, slightly darker on the head, and more rusty on the rump. Upper tail-coverts brownish cinnamon. Rectrices rufous brown, outer webs more cinnamon-rufous. Quills dark brown, outer webs edged with pale brown, larger upper wing-coverts with some brownish yellow spots, forming an indistinct bar across the upper wing. Lores and feathers round the eyes brownish buff. Feathers of chin and throat pale orange rufous, bases white; feathers of breast orange rufous with black bases. Abdomen and under tail-coverts white; sides of body brown. Under wing-coverts white; inner wing-lining ashy white. One skin, marked ♂, is exactly like the ♀; it may be a *young male*, if not also a *female*.

40. *Pitta concinna* Gould.

A nice series from elevations of 1000, 2000, and 4000 feet. "Iris of ♂ and ♀ ad. deep chestnut; bill black; feet pale reddish." The sexes, when adult, do not seem to differ. A young bird has the tip of the beak, gape, and base of mandible dark orange, the back more dusky, the breast dark brown, the vent and under tail-coverts of a very pale reddish colour.

41. *Caprimulgus macrurus* Horsf.

One adult *male*. Wing 191 mm.

42. *Iyngipicus grandis* Hargitt.

At 1000, 2000, and 6000 feet. "Iris dark brown; bill and feet blackish." Known from Lombok and Flores. (*Picus moluccensis*, Wallace, *l.c.*)

43. *Monachalcyon fulgidus* (Gould).

Only met with in the hills at about 2000 and 5000 feet above the sea. "Iris, eyelids, beak, and feet all uniform orange-red; claws brown." An immature bird is black above, the underparts washed with brownish buff.

This species is evidently congeneric with *M. monachus*, as there are no structural differences whatever.

44. *Halcyon australasiae* (Vieill.).

Up to about 2000 feet above the sea. "Iris deep brown; maxilla and tip of mandible black; rest of mandible white."

45. *Halcyon chloris* (Bodd.).

The Lombok form of this widespread and variable species is rather large, and the top of the head and upper back are very dusky, thus closely approaching *H. sordidas* Gould, which is probably not more than a subspecies of *H. chloris*. The wing of Lombok specimens is 115—119 mm. long.

*46. *Cuculus poliocephalus* Lath.

Old and young from heights of 4000 and 5000 feet. ♂ ad. "Iris bleared reddish brown; maxilla black; mandible greenish; gape at base ochre; eyelids bright ochre." ♀. "Iris outwardly dull creamy, inwardly brownish; maxilla black; mandible and gape greenish yellow."

*47. *Cacomantis threnodes* (Gib.).

Shot at 1000 feet. ♂. "Iris red-brown, inwardly paler; bill black; gape reddish; feet reddish ochreous, claws blackish." Rather large and pale.

48. *Centropus javanicus* (Dunmont).

♀ at 3000 feet. "Iris inwardly dark brown, outwardly pale brown." The *Centropus affinis* of Wallace's list.

*49. *Trichoglossus mitchelli* Gray.

It is with great satisfaction that we are able to make known the home of this handsome Lory, which was hitherto unknown. Doherty collected a large series in the hills of Lombok, at elevations of 3000 to 4000 feet. In both sexes he found the iris orange, the beak orange, more yellow at tip and darker at base, the feet bluish. In the young bird the bill is uniform dull orange. The sexes are alike in colour and size. Immature birds have blackish edges to the red feathers of the

breast, a more dusky crown, and the nape more or less tinged with green. A variety shows broad yellow subterminal bars to the feathers of the upper breast. The wings measure 125—130 mm.

50. *Cacatua parvula* (Bp.).

Shot in the hills from 1000 to 5000 feet high. "Iris dark brown; bill and feet black." Two *females* with the wings 225 and 227 mm., three *males* with wings from 225—232 mm. Bills varying a little, but not much, in size.

*51. *Geoffroyus sumbavensis* Salvad.

In the hills from 2000 to 4000 feet above the sea. A series of Lombok specimens agrees in every respect with the types of *G. sumbavensis* and a series of skins collected by Doherty in Sambawa. The adult *female* has the head dull brownish brick-red, just between figs. 11 and 14 on Plate IV. of Ridgway's *Nomencl. Col.*, slightly paler on the sides of the head, merging into greenish yellow on the upper throat. Both sexes, when quite young, have the head green like the back; young *males*, before moulting into the lilac-blue colour on the crown, assume a brick-red crown similar to that of the old *female*.

Whether it will eventually be possible to keep *G. sumbavensis* distinct from *G. floresianus* seems somewhat doubtful. The large series before me now measure as follows, only evident *males* not in moult being measured: Sambawa, wing 159—168 mm., mostly 160—164; Lombok, 160—168, mostly 160—165; one *male* from Flores, collected by Wallace, 159 mm.; while Salvadori gives (*Cat. B. Brit. Mus.* XX, p. 497) 152 mm. as the length of the wing of *G. floresianus*. The difference of the length of the wings is therefore slight, and besides it I can see none, except a somewhat darker colour of the under wing-coverts and axillaries. A good series of Flores skins from different places is wanted.

The iris of Lombok skins is described as "pale yellowish; the maxilla as orange, tipped with dirty ochre-yellow; the mandible blackish; feet dirty brownish, claws blackish." *Females* and young birds have the maxilla brown, or blackish, like the mandible.

*52. *Osmotreron griseicauda* (Schleg.).

At 2000 feet above the sea.

53. *Ptilinopus melanocephalus* (Forst.).

At about 2000 feet.

*54. *Ptilinopus albocinctus* Wall.

Hitherto only known from Flores, while Timor is inhabited by the quite different, though closely allied, *P. cinctus*. Lombok specimens are quite like the type and only known specimen of *P. albocinctus* in the British Museum. The sexes are perfectly alike, though, on an average, the *female* seems to have the wing 5 to 10 mm. shorter than the *male*. Young birds have yellow edges to the feathers above and below. "Iris orange; beak pea-green, tip ochreous; feet beet-red with dark claws." Wing: *males* 160—170 mm., *females* 155—159.

† *55. *Carpophaga sasakensis* sp. nov.

Carpophaga speciei *C. lacernulata* dictae similis, sed subeandalibus griseo-vinaceis, nec castaneis.

Hab. Lombok.

♂ ad. Cap ashy grey. Hind-neck greyish vinous, passing through ashy grey into the colour of the back, which, like all the rest of the upper parts, is of a brownish slate-colour with a very slight metallic-green tinge and a greyish hue, the rump being more greyish slate. Underparts pale greyish vinaceous, more grey on the chest. Sides of body and under wing-coverts slaty grey. Tail dark slate-colour, tips grey for 37 to 40 mm., slightly darker on the edges. "Iris deep dull brown; beak dark slate-colour, darker at tip; eyelids dark red; feet dark purplish red, soles ochreous, claws black." Total length about 140—150 mm.; wing 227—233; tail 175; tars. 30; middle toe without claw 35; culmen from end of feathering to tip 20 mm. Two *males*, both alike, were shot in Lombok, at about 3000 feet, in June, by Mr. Doherty.

56. *Chalcophaps indica* (L.).

Lombok at about 1000 feet.

*57. *Columba metallica* Temm.

One ♀, shot about 3000 feet above the sea, is not distinguishable from the two *males* from East Timor—the only island from where this species is known—in the British Museum, except that it has rather a short wing, that being only 218 mm. long. "Iris orange; beak dark red, outer half greenish ochre; eyelids and gape dark red; fore aspect of feet dark red; hind aspect, soles, and claws pale yellowish."

58. *Turtur bitorquatus* (Temm.).

2000 feet. "Iris orange; beak blackish; base of gape, eyelids, and feet dark red."

59. *Turtur tigrinus* (Temm.).

Lombok up to 3000 feet.

*60. *Macropygia leptogrammica* (Temm.).

Hills of Lombok, from 3000 to 6000 feet. "Iris outwardly purplish pink, followed by a black line and then (inwardly) by a gamboge yellow or greyish ring; feet dark red, claws dark grey; beak dark brown" (W. Doherty).

61. *Macropygia emiliana* Bp.

Lombok in elevations of 2000 and 5000 feet. "♀. Eye orange; beak dull brown; feet dark red with brown claws."

62. *Gallus gallus* (L.).

Shot 3000 feet above the sea.

63. *Gallus varius* (Shaw & Nodd.).

Shot 5000 feet above the sea.

64. *Ardea novaehollandiae* Lath.

At nearly 5000 feet elevation.

Doherty thus collected in Lombok almost exactly the same number of species as Wallace, who enumerates sixty-two.* Both naturalists collected chiefly small birds and very few large ones, but Doherty sent twenty-one species not got by Wallace, and consequently about as many of Wallace's species have not been sent by him. Of these three are here described as new, and of them two, *Carpophaga sasakensis* and *Chlorura intermedia*, have decided Javanese affinities, while the third is evidently nearest related to a Celebes species, but it is clearly rather of a Malayan than an Australian character. Of the others six are Javanese forms; four are generally distributed over the Malayan and Austro-Malayan islands, but are not Australian; three are known from Flores and Timor; one from Flores alone; two from Timor alone; one from Sambawa only, but is very closely allied to the forms from Flores and Timor; one, *Trichoglossus mitchelli*, is probably confined to Lombok, and it is of very distinct Australian (or Timorese) relations, no *Trichoglossus* reaching to Indian or purely Malayan regions. Dr. Vorderman, in *Natuurk. Tijdschr. v. Nederl.-Indië*, Vol. LIV., mentions fifty-one species as noticed by him in Lombok. Most of these were collected by him, but a few were only seen. A large kingfisher has been described by Vorderman as "*Pelargopsis sasak* nov. subsp." It is very doubtful whether this bird is distinct from *P. gurial floresiana*, the only difference I can gather from the description being the want of the green wash on the head, and this being absent in younger birds of *floresiana* (see p. 570). The sex of Vorderman's bird is not stated, nor that of the types of the *floresiana* in the British Museum. On the other hand, the length of the bill given by Vorderman (culmen 89 mm.) is rather against its being a young bird.

V.—LIST OF COLLECTIONS FROM SAMBAWA.

Mr. Doherty sent two collections from Sambawa (or Sumbawa), a small one from low country near *Bima*, on the north coast of Eastern Sambawa, and a larger one from the Peninsula of *Tambora*, in about the middle of the north coast, partly collected in the lowlands, partly on the slopes of the high volcano of *Tambora*, but mostly not higher than about 3000 feet. Unfortunately a long letter about the nature of *Tambora*, the collections made there and the adventures of the collectors on the mountain, "has been lost or mislaid by the messenger I sent it with from *Swéla*,—at any rate it never reached the hands of the controlleur (Dutch official) at *Labuan-Hadji*, who was to post it to Europe," writes Doherty.

The birds from *Bima* were shot in February, those from *Tambora* in April and May.

* His *Cisticola ruiceps* and *C. linuocapilla* are both what is now called *C. exilis*.

The ornithology of Sambawa has hitherto only very imperfectly been known. The Leyden Museum possesses some birds from there, collected in the first half of this century by Forsten, near Bima, and a few of them were described long ago by Bonaparte (*Chibia bimānsis*, *Trichoglossus forsteni*).

The naturalists of the yacht *Marquesa* landed on the north coast, wishing to ascend the mountain of Tambora, but they did not succeed, and collected only a few days on the island. Dr. Guillemard nevertheless gave a list of the species of birds obtained in the *Proceedings of the Zoological Society of London* for 1885, enumerating thirty-eight species.

Nearly all of these have also been met with by Doherty, who sent sixty-five species, adding no less than thirty-four species to the Sambawa list, of which one and one subspecies are here described as new.

The species which have not hitherto been registered from Sambawa, as far as I know, are marked with an asterisk.

The newly added species are mostly known from other islands of the so-called Timor group of islands; the others are rather Indo-Malayan elements, only one, *Falco lunulatus*, being of Australian origin.

1. *Pratincola caprata* (L.).

Low country at Bima and Tambora.

*2. *Geocichla interpres* (Temm.).

Tambora at 2000 feet. Not different from the Lombok specimens.

*3. *Geocichla dohertyi* Hartert.

(See *antea*, p. 555.) In the hills of Tambora at about 3000 feet.

*4. *Phylloscopus borealis* (Blas.).

Bima and Tambora, low country and at 3000 feet. *Males* with wings 70—72 mm., a *female* wing 63 mm.

It is quite possible that two forms, a larger and a smaller, migrate in winter to these islands, for in our other specimens the sexual difference in size is not so large.

*5. *Brachypteryx leucophrys* (Temm.).

Tambora, 3000 feet. "Iris dark brown; beak black, pale below; feet pale slaty grey." There is a good deal of variation in these little birds, some being much more rufous, others more olive, the middle of the throat and abdomen being sometimes quite white, sometimes very much washed with pale brown.

6. *Parus atriceps* Horsf.

Bima and Tambora, low country and up to an elevation of 3000 feet. (*Parus cinereus* of Guillemard's list.)

*7. *Dicaeum igniferum* Wall.

Tambora, low country and at 3000 feet.

♂. "Iris dark brown; beak black; feet blackish." Wings of the *males* 50—52 mm., of the *females* 49 mm. These measurements are a little larger than those given in the *Cat. B. Brit. Mus.*, X, p. 19, from Flores specimens.

*8. *Prionochilus obsoletus* (Müll. & Schleg.).

Bima and Tambora, in low country. "Bill dark brown, paler below; feet dark grey; iris light orange-brown."

*9. *Anthreptes malaccensis chlorogaster* (Sharpe).

Both sexes from Bima. The Sambawan race of this bird is very dark below, almost as much so as the Celebes form, and they are very large birds. Wings, ♂, 70 and 71 mm.; culmen 21—22 mm. The *female* is very green above.

10. *Cinnyris pectoralis* (Horsf.).

Low country and hills of Tambora at 3000 feet.

11. *Stigmatops ocularis* (Gould).

Tambora, from the sea-coast up to 3000 feet.

12. *Philemon neglectus* (Büttik.).

Tambora, low country. "Iris dark brown."

(*Philemon timoriensis* Guillemard, *P. Z. S.* 1885, p. 509.)

13. *Zosterops aureifrons* Wall.

A fine series from the lowlands of Bima and Tambora. I have compared them with the types of the species in the British Museum and found them identical. The types are from Flores, but Sharpe (*Cat. B. Brit. Mus.* IX. p. 160) mentions also Sambawa as the habitat of the species, while Guillemard does not enumerate the bird.

"Iris red-brown; bill blackish; base of mandible and near nostrils whitish; feet dull slaty grey."

14. *Zosterops intermedia* Wall.

Not rare in Tambora.

This is the bird named *Z. brunneicauda* by Dr. Guillemard in *P. Z. S.* 1885, p. 508. I, however, cannot find any constant characters to separate these birds from *Z. intermedia*, though most of my specimens have longer wings and bills, others, on the other hand, being in no way larger. *Z. brunneicauda* Salvad. is very closely allied, but the totally different locality whence it came (Ceram Lant, Choor, and Arn), as well as the quite black bill and more olive flanks, seem to be against its identity with the Sambawa birds. *Z. griseiventris* Sel., from Timor Lant, is also allied. *Z. sambawensis*, described by Guillemard *loc. cit.*, is much more yellow and may be a different species. It was shot at Bima.

Lophozosterops gen. nov.

A series of a pretty little bird from the mountain of Tambora cannot, without violence, be united with any genus known to us. I am, therefore, obliged to create a new genus for its reception. In its wing-formula it agrees best with *Zosterops*, to which genus it seems most nearly allied. The nasal aperture is covered from above with a strong operculum, the beak rather strong and stout. Tail shaped as in *Zosterops*. Tarsus distinctly, though only about 1 mm., longer than middle toe with

claw, and covered with seven or eight strongly marked scutellae. Wing longer than tail. Plumage soft and full, as in *Zosterops*. Eye surrounded by a narrow ring of white feathers. Head with a full crest. Coloration above olive, below yellow; crested top of head of different colour, *i.e.* blackish brown with white streaks.

Type: *Lophozosterops dohertyi*.

*15. *Lophozosterops dohertyi* sp. nov.

♂ ad. Top of head blackish brown, each feather with a long, narrow, guttate white spot near the shaft towards the tip, these spots becoming brownish and obsolete on the hinder part of the crown. Lores black. Eyes surrounded with a narrow white ring of feathers. Behind the eyes an elongate yellowish spot. Ear-coverts olive. Rest of upper surface, including wing-coverts, greyish olive. Wing-quills blackish brown, outwardly margined narrowly with olive-green, inwardly broadly with yellowish white. Entire under surface sulphur-yellow, paler on throat. Under wing-coverts yellowish white. "Iris dark brown; beak black; feet yellowish slate-colour." Total length about 120 mm.; wing 62—65 mm.; tail about 50; tarsus 17—18; culmen 14 mm.

♀ like *male*, but wing apparently 2 or 3 mm. shorter.

Hab. Volcano of Tambora, 1000 to 3000 feet high.

*16. *Mirafrā horsfieldi parva* (Swinh.).

♂ ad. Tambora, low country. Hardly distinguishable from some Australian *M. horsfieldi*, and also very close to *M. javanica*, so that it is not easy to say, in my opinion, to which of these forms it is closer allied. "Iris light brown; feet pale reddish; maxilla blackish; mandible dull ochreous." Wing 68; tail 48; tarsus 20; culmen 13.

Only known from Flores.

*17. *Anthus rufulus medius* (Wall.).

Lowlands of Bima and Tambora and hills at 3000 feet. All alike in colour.

"Iris brown; feet dull ochreous; maxilla dark brown; mandible pale ochreous."

*18. *Munia molucca propinqua* Sharpe.

Two *males* from Bima have a distinct patch of white, unbarred, on the sides of the breast, by this as well as geographically belonging to the subspecies *propinqua*, to which the specimens from Kalao must probably also be considered to belong (*antea*, p. 168).

Some young birds were shot at Tambora.

19. *Artamus leucogaster* (Valenc.).

Low country of Tambora and Bima.

20. *Calornis minor* Bp.

Bima, low country.

21. *Eulabes veneratus* (Bp.).

Tambora, from the low country up to 3000 feet.

"Iris dark brown." Specimens from Flores are totally alike.

22. *Chibia bimaensis* (Bp.).

Typical Sambawa specimens are smaller than most specimens from Lombok and Bali, but the dimensions seem to vary to a certain extent, and I do not, therefore, dare to separate the Bali and Lombok birds from those of Sambawa at present.

23. *Oriolus broderipi* Bp.

Tambora, low country and at 3000 feet, and Bima. See *antea*, p. 560.

Young birds have black shaft-lines below and are pale yellow; their middle rectrices are greenish. "Iris crimson; beak pinkish; maxilla blackish near tip; feet dark grey."

24. *Lanius bentet* Horsf.

Low country at Bima and Tambora.

25. *Pachycephala fulvotincta* Wall.

A *male* from Bima agrees entirely with the types of the species in the British Museum, which are from Flores.

26. *Lalage timoriensis* (S. Müll.).

Low country at Bima and Tambora, and at about 3000 feet above the sea.

*27. *Graucalus floris* (Sharpe).

♂, ♀, from the low country of Tambora.

♀. "Iris dark brown; beak and feet black." The fully adult *male* has a narrow line of black on the forehead; lores, cheeks, ear-coverts, chin, and throat black.

♂. Wing 162 mm. ♀. Wing 158 mm.

28. *Pericrocotus lausbergi* Büttik.

(Plate XI. f. 1, 2.)

This beautiful species has been collected in the Tambora Peninsula from the low country up to about 3000 feet above the sea. It is well described by Büttikofer in *Notes Leyden Museum*, 1886, p. 155, and a black figure of both sexes given. It may be added that the rectrices have their shafts black as far as the black colour reaches, while they are white from below within the red colour. The *females* before me are dark smoky grey above. The *males* have the wings 72—75 mm., the *females* 72—74.

♂ ad. "Iris dark brown; feet and bill black." The young *males* are like the *females*.

*29. *Muscicapula hyperythra* (Bl.).

Frequently met with in the hills of Tambora at about 3000 feet.

♂ ad. "Iris very deep brown; bill black; feet dark grey."

*30. *Muscicapula westermanni* Sharpe.

In the same localities as the former species.

♂. "Iris dark brown; bill and feet black; ♀ the same."

***31. Erythromyias dunetoria** Wall.

Frequently met with in the mountains of Tambora at about 3000 feet.
 "♂. Iris dark brown; bill black; feet dull pale slate-colour."

***32. Cryptolopha trivirgata** (Strickl.).

Common in the mountains of Tambora.

"Iris dark brown; feet dark slaty, soles ochreous; beak blackish; commissure and base of mandible pale." Wings 58—60 mm. The few Java specimens I was able to measure have the wings some millimetres shorter.

33. Rhipidura sumbawensis Büttik.

In the low country and at 3000 feet in Tambora. "Iris dark brown; bill black; feet dark brown." The long rictal bristles have very conspicuous white bases, while their tips are black. Wings of *males* 81—82 mm., of *females* 76—77 mm. (*Notes Leyden Mus.* 1893, p. 85.)

34. Hypothymis azurea (Bodd.).

Bima and Tambora, low country and 3000 feet.

***35. Collocalia esculenta** (L.).

One ♂, shot on the volcano of Tambora, at 3000 feet, belongs to this species, though it is rather steel-blue above. Wing 94 mm.

This species has never been known to extend so far westwards. Timor possesses a quite different species, and it is probably *via* Djampea and Kalao, from Celebes, that this species reaches the Lesser Sunda Islands. Lombok has *C. linchi*.

36. Caprimulgus affinis Horsf.

♂ ad. in full moult. Tambora, low country.

37. Iyngipicus grandis Harg.

Bima and Tambora, low country and at 3000 feet. "Iris dark brown, or brownish grey; feet greenish; bill dark bluish slate-colour, paler at base below."

38. Merops ornatus Lath.

Met with commonly in the low country and in the hills of Tambora at about 3000 feet, and also at Bima. Dr. A. B. Meyer in *Sitzungsber. Isis*, Dresden, I. p. 19, called attention to a blue spot under the black band of the throat in some Sumba specimens. This remarkable blue spot is very largely developed in one specimen from Sambawa, while it is not visible in another adult bird.

***39. Pelargopsis gural floresiana** (Sharpe).

This very distinct form of *P. gural* was shot in the low country of Tambora. The iris was "dark brown; eyelids and beak dark vermilion; tip of beak dark blackish; feet coral-red; claws blackish."

A young bird has the "beak partly blackish": the crown darker brown and *without any green wash*; feet not so bright red: feathers of the breast margined with black.

40. *Alcedo ispida floresiana* (Sharpe).

One from Tambora, wonderfully bridging over the way from *A. ispida bengalensis* to *A. ispida ispidioides*. (This is the *Alcedo bengalensis* of Guillemard's list.)

*41. *Ceyx innominata* Salvad.

Six skins from the low country of Bima and Tambora. ♂ ad. "Iris dark umber-brown; beak and feet coral-red." A *female* has the beak and feet "orange," a young bird "pale sordid brown."

None of these birds is so strongly washed with lilac above as some of my Bali birds, but it seems to me that the stronger lilac wash comes with age.

I cannot see the differences between *C. euerythra* Sharpe (*Cat. B.* XVII. p. 179) and *C. innominata*. There seems to be no constancy in the colour of the upper parts, older birds being more lilac, nor any in the more or less black scapulars and wing-coverts. A specimen from Banguran, kindly named for me by Sharpe himself as *C. euerythra*, has no black whatever on scapulars and wing-coverts. *C. dillwyni* is probably only subspecifically separable from *C. tridactyla* on the one hand and *C. innominata* (= *euerythra*) on the other hand. Some of the specimens called *C. euerythra* in the British Museum are inseparable from *C. dillwyni*, others inseparable from *C. innominata*.

42. *Halcyon chloris* (Bodd.).

In the low country at Bima and Tambora. Heads of the two sent lighter than in the Lombok specimens.

*43. *Halcyon sanctus* Vig. & Horsf.

Tambora, low country and upwards to about 3000 feet.

*44. *Monachalcyon fulgidus* (Gould).

Common in the low country and hills of Tambora, to about 3000 feet. Young birds and nestlings have the back and wing-coverts more or less black, the breast washed with ochreous brown.

45. *Eurystomus orientalis australis* (Sw.).

An adult *male*, shot in the low country of Tambora, agrees better with *E. australis* than with *E. orientalis*, but stands somewhat between the two forms. The birds of the Lesser Sunda Islands and Celebes seem to connect *E. orientalis* and *E. australis*. See on this vexed question, among other places, A. B. Meyer, *Mitth. zool. Mus. Dresden*, I. 1875, p. 18; *id.*, *Verh. zool. bot. Ges.* 1881, pp. 763, 764; Sharpe, *Cat. B. Brit. Mus.* XVII. p. 34 footnote, p. 38 (intermediate specimens!); Dresser, *Monogr. Coraciidae*. Sharpe, in the *Catalogue of Birds*, XVII. p. 37, does not mention the Lesser Sunda Islands at all as the habitat of *E. australis*, but from his synonymy and his enumerating the specimens from the

islands of Lombok, Timor, and Flores under *E. australis* on the next page, it is clear that he considers all the birds from there as belonging to the latter species. "Iris and eyelids dark reddish brown; beak dark red, tip and culmen black."

*46. *Cuculus poliocephalus* Lath.

Tambora, 3000 feet.

*47. *Cacomantis threnodes* Cab.

Tambora, 3000 feet.

*48. *Chalcococcyx malayanus* (Raffl.).

Low country of Tambora. "Iris inwardly light brown, outwardly whitish; bill black; feet blackish."

*49. ? *Eudynamis honorata malayana* (Cab. & Heine).

One *male* from the low country of Tambora. See remarks on form from Satonda, p. 575, which apply to the Tambora bird as well.

50. *Centropus javanicus* (Dumont).

Bima.

51. *Trichoglossus forsteni* Bp.

Two beautiful *males* from Bima, the same locality where the type came from.

These two specimens agree fully with the one we had from Sambawa out of Dr. Guillemard's collection, and have not such a broad blue patch behind the pale greenish band on the hind-neck as all those from Djampea have. (*Antea*, p. 176.)

*52. *Pisorhina albiventris* (Sharpe).

Scops albiventris, *Cat. B. Brit. Mus.* II. p. 78, is a subspecific form of either *S. magicus* or *S. menadensis*, the latter species being its nearest ally.

The two skins before me from the low country of Tambora agree in every respect with the type in the British Museum, which was collected by Wallace in Flores.

"Iris yellow; beak dirty brownish, tip and commissure darker; feet dirty whitish."

*53. *Falco lunulatus* Lath.

Tambora at 3000 feet.

Somewhat pale below, but evidently this species. Wallace obtained it in Flores.

♀. "Eye dark brown; eyelids bluish at their edges; cere slaty blue; beak bluish grey, blackening towards the tip; feet greenish yellow, claws black."

*54. *Osmotreron vernans* (L.).

A series from the low country of Tambora. The wings of the *males* measure from 146 to nearly 150 mm. "Bill French grey, base greenish black; iris crimson, with an inner ring of blue; feet dark magenta-red."

A quite young bird of this species has brownish buff tips to many of the feathers above and below.

***55. Ptilinopus albocinctus** Wall.

Tambora at elevations of 3000 feet.

“ Iris crimson ; beak yellowish green, tip ochreous : feet dark beet-red.”

***56. Ptilinopus melanocephalus** (Forst.).

Tambora, low country and up to 3000 feet.

***57. Carpophaga aenea** (L.).

Tambora, low country as well as up to 3000 feet. “ Iris dark crimson ; eyelids dark red ; feet dull purple-red ; base of beak dark red, tip dull slaty.”

Two vividly coloured birds, below rather light, throat vinous grey, crown pale, the latter being conspicuously darker in skins from Cachar (E. C. S. Baker coll.) and Tenasserim (Col. Bingham coll.). With a large material for study it will probably be possible to divide *C. aenea* into several subspecies. (See Salvadori, *Cat. B. Brit. Mus.* XVI. p. 193.)

***58. Macropygia ruficeps orientalis** subsp. nov.

There are several small specimens of *Macropygia*, one marked *male*, one marked *female*, from Tambora, Sambawa, shot at elevations of about 3000 feet, one immature *male* from the low country of Tambora, and one *male* from Bali, shot in low country. These birds agree with *M. ruficeps* (Temm.), except in their longer wings and their generally darker, deeper rufous under tail-coverts. The supposed *female* may possibly not be a *female*, but a somewhat young *male*, for it has no black on throat and breast, and differs from the *male* only in having the feathers of the hind-neck and upper back of an earthy brown, without any metallic gloss, and all the rest of the upper surface of a paler brown. The bird from Bali is distinctly smaller, but has the under tail-coverts very deep rufous. The Sambawa bird might, therefore, stand as a new subspecies, and the Bali form is perhaps intermediate between *Macropygia ruficeps orientalis* from Sambawa and *M. ruficeps typica* from Java and Sumatra. The wing of the Tambora birds measures 151 and 155 mm., that of the young bird 142 mm., but the latter is not full grown. The tails are 165 mm. long. The bird from Bali has the wing 145, the tail 150 mm. long.

In my opinion the specimens from Tenasserim and Burma constitute another subspecies, characterised by its long wing (149 mm.) and somewhat pale underside, while all our birds from North Borneo are decidedly paler than those from Sumatra and very small.

59. Turtur bitorquatus (Temm.).

Low country of the Tambora Peninsula. “ Iris orange ; skin round eye and base of beak laterally dark red ; feet dark red, claws brownish ; bill black.”

Sambawa specimens do not differ from those from Java.

60. Turtur tigrinus (Temm.).

Bima and low country of Tambora.

61. *Geopelia maugei* (Temm.).

Low country of Tambora. ♂. "Iris whitish; eyelids ochreous; beak bluish grey; feet purplish grey, claws paler."

*62. *Columba metallica* Temm.

Two *males* and one *female* from Tambora, at 3000 feet, the *males* with wings of 232 and 242 mm., the *female* with the wings 223 mm. "Iris orange-yellow; eyelids and basal two-thirds of beak dark red, terminal third ochreous horn-colour; feet beet-red, soles and claws whitish or whitish flesh-colour."

63. *Chalcophaps indica* (L.).

From the low country.

*64. *Gallus varius* Shaw & Nodd.

Tambora, low country and at 3000 feet.

"*Male* adult. Eyes ochreous orange; maxilla dark brown, with pale tip; mandible pale horn-colour; naked parts of head dark red; wattle on chin rich ochreous; feet sordid brown; comb violet, greenish at base. *Female*: eye pale orange; feet whitish; beak brown, pale at base."

*65. *Megapodius duperreyi* Less. & Garn.

In the hills of Tambora at about 3000 feet above the sea. *Male* adult. "Iris reddish brown; beak deep ochre; culmen dark; feet orange; scutellae of toes and tarsus in front dark brown; claws blackish."

VI.—ON BIRDS FROM SATONDA.

Doherty writes:—

"The island of *Satonda* or *Sitonda* lies three miles off the coast of Northern Sambawa. I think it must be some three miles across, and consists of a large lake of immense depth, and almost inaccessible on account of the high cliffs round it, enclosed as it is by a ring of steep hills, ranging up to 1500 feet. It is partly pasture, partly forest. The island is greatly feared by the Tambora people on account of its enormous *pythons*. One I saw was about twenty-five feet long. Ram Persad shot one rather bigger, I imagine, and I saw the excreta of one containing the bones of a full-grown deer; that snake must have been a monster. Deer abound on the island, and so do pigs. The birds that inhabit Satonda are partly different ones from those on the mainland, as so often happens on small detached islands. There are Nicobar pigeons, not met with in Sambawa. As you will see, there are quite a number of species that are not found in Sambawa. There are *Turnix pouelli*, of which I send both sexes; there are some *Eudynamis* which are very puzzling; *Caprimulgus macrurus* and *Carpophaga roseacea* were shot, while *Caprimulgus affinis* and *Carpophaga aene* were found instead on Sambawa."

No birds have been recorded from Satonda before.

1. *Cisticola cisticola* (Temm.).

Several specimens, in rather abraded and poor plumage.

2. *Cinnyris pectoralis* (Horsf.).

Two *males* and two *females*, like those from Sambawa.

3. *Lophozosterops dohertyi* Hartert.

One *male*. Like the type from Sambawa. (See p. 568.)

4. *Artamus leucogaster* (Valenc.).

Females.

5. *Monarcha inornatus* (Garn.).

♂, Satonda. "Iris dark brown; beak slaty blue, asymmetrically marked with black; feet slaty blue."

This is probably the westernmost place of the occurrence of this species.

6. *Erythromyias dumetoria* Wall.

One *female* from Satonda.

7. ? *Eudynamis honorata malayana* (Cab. & Heine).

One *male* and three *females* from Satonda are very puzzling. They are larger than any *E. honorata typica* I have measured, and much more rufous at least than any Indian specimens. I do not dare to decide at present finally what they are. It is probable that they are a large race of *E. honorata*, with a more rufous *female*, and might stand as *E. honorata malayana* (Cab. & Heine). They also point towards *E. orientalis*, but seem smaller and the *female* a little different. Perhaps they should receive a subspecific name as standing between *E. honorata* and *E. orientalis*. The geographical distribution does not help us, as Shelley in *Cat. B. Brit. Mus.* XVII. p. 323—if his divisions are natural—gives Lombok as a locality for *E. orientalis*,* and also allows *E. honorata* to extend from India to Flores! Doherty's *female* had: "Iris chestnut; beak blackish; gape and from below greyish horn-colour; feet dark green." ♂ ad. "Eye crimson; beak ochreous horn-colour; feet dark grey." ♂ wing 205 mm.; ♀ wing 210 mm.

I wish to await more material before finally judging of this species or subspecies.

8. *Centropus javanicus* (Dumont).

One young bird from Satonda.

9. *Eurystomus orientalis australis* Sw.

One *male* from Satonda.

10. *Spizaëtus kieneri* (Geoffroy St. Hil.).

♀ ad., Satonda. "Iris chestnut; cere ochreous; gape dull ochreous; beak bluish black; base of mandible pale; feet ochreous, claws black." Wing 367 mm.

11. *Ptilinopus melanocephalus* (Forst.).

One from Satonda.

* Though under "*Hab.*" he says only "Moluccas" and does not mention Lombok!

12. *Carpophaga rosacea* (Temm.).

Satonda, near Tambora, Sambawa, May 1896. "Eye dark crimson; beak dark grey, dark red at base; feet purple-red."

This seems to be the most western locality hitherto known of *C. rosacea*.

13. *Caloenas nicobarica* (L.).

This species has hitherto not been found in the Timor group of islands, but Mr. Doherty obtained three young birds on the island of Satonda.

14. *Turnix powelli* Guillemard.

Three *males* and one *female* from Satonda. The *males* agree very well with the figure on Plate XXIX. and the description given on p. 511 of *P. Zool. Soc. Lond.* 1885. They look much like *T. rufilatus* Wall. of Celebes, but are distinguished by the absence of rufous below, the abdomen being white in the middle, barred on the sides, vent and under tail-coverts very pale buff, with or without distinct black bars. The middle line on the crown is narrow and ill-defined. The *female* differs from the *male*, having the throat black in the middle. I do not understand Dr. Guillemard saying that the "black stripe on the throat of the *male* bird is considerably more restricted" than in *T. rufilatus*. First of all he evidently mixes up the sexes, the *female* only having a black throat, not the *male*, while the sexes are nearly alike in *T. rufilatus*. The *female* of *T. rufilatus* differs from its *male* in being larger, with a longer wing, in the forehead being black, the throat more whitish; but the scapulars are in no way more mixed with rust-colour than in the *male*.

The black throat of the *female* of *T. powelli* removes this species more from *T. rufilatus*, and suggests a closer relationship to *T. taigoor* than *T. rufilatus* shows.

"♂. Iris pale yellow; beak pale greenish ochreous, tip and culmen much darker; feet brighter greenish ochreous, claws pale reddish. ♀. Iris yellowish white; beak *all over* greenish yellow, not partly blackish as in ♂."

VII.—LIST OF THE BIRDS COLLECTED IN SUMBA.

Few and small are the publications about the island of Sumba. In 1881 Dr. A. B. Meyer published a list of forty species of Sumba birds in the *Verhandl. der k. k. zoolog. botan. Gesellschaft in Wien*, pp. 759—767. Of these only two, viz. *Ninox rudolfi* and *Graucalus sumbensis*, were described as new species, *Tanygnathus megalorhynchus* var. *sumbensis* as a new subspecies. In 1892 Dr. J. Büttikofer enumerated, in *Notes Leyden Mus.* XIV. pp. 196—204, thirty-two species, of which only eight were the same as those named by Dr. Meyer, and one a new species, viz. *Dicaeum wilhelminae*. In the same year the latter author described (*Notes Leyden Mus.* XIV. p. 267) the *Geoffroyus* which at first he had called *G. jukesii* as *G. tjindanae* sp. nov. Quite recently Büttikofer described a duck from Sumba under the name of *Anas salvadorii* (*Notes Leyden Mus.* XVIII. p. 59). The number of species thus known from Sumba was sixty-five, of which six, viz. *Ninox rudolfi*, *Graucalus sumbensis*, *Dicaeum wilhelminae*, *Tanygnathus megalorhynchus sumbensis*, *Geoffroyus tjindanae*, and *Anas salvadorii*, had received their own names.

It is with great pleasure that we now publish Doherty's list, which contains many species not yet recorded from Sumba, among them the most beautiful *Ptilinopus dohertyi* Rothsch. and other more or less interesting previously unknown forms, as well as the *Electus cornelia*, the home of which was unknown before.

With the help of the following list, and another which I hope to be able to give of a further collection from Sumba that is probably on the way to Europe, we may hope that, instead of the unlucky star of which Dr. Meyer complained in 1892, a bright day will soon dawn over our knowledge of the avifauna of the most interesting island of Sumba, thanks to the energy of our collecting friends abroad.

Sumba or Humba, on the maps also frequently called Tjendana, Tjindana and Chendana, Sandelhout and Sandalwood, not being within the long chain of islands that extends from Java eastwards to Flores, and on to Ombay, Wetter, etc., but being an outlier south of Flores and west of Timor, is of particular zoogeographical interest, and I think therefore that it is worth while to extract some notes from the valuable and highly interesting account given by Doherty in the *Journal of the Asiatic Society of Bengal*, LX. 1891, in a paper entitled "The Butterflies of Sumba and Sambawa, with some Account of the Island of Sumba":—

"Sumba is one of the largest of the Lesser Sunda Islands, having an area probably exceeding six thousand square miles, for the unexplored southern coastline, drawn on the maps as concave, is really convex, giving great breadth to the island. . . . Deep sea separates Sumba from Flores, the high peaks of which are distinctly visible from Nangawesi Bay, but a bank covered by 50—80 fathoms of water connects it with Eastern Sambawa,* while on the side of Savu and Roti there is apparently deep sea again. . . . The aspect of the north coast of Sumba is most forbidding. Long naked headlands, Sasa, Ngarnlubu, Mandolu, famous for their horses, extend far into the sea, marked with the lines of raised beaches. All this side of the island, for as much as forty miles inland and up to a height of two thousand feet, is covered with a sheet of coral overlying sandstone. Near Kawangu the sandstone is uncovered, forming hills curiously carved and water-worn. The coral must be of considerable age, and is often extraordinarily hard, reminding one of the ancient metamorphic limestones of Greece, in Boeotia and Arcadia. Its surface is infinitely rough and broken, capable of destroying the strongest boots in a few days. Fortunately, wherever the ground is level, the coral is hidden by a coating of indurated clay like laterite, and the native paths keep to this as much as possible. A scanty growth of grass, especially the horrible spear-grass, which renders travelling almost unendurable, covers the coral. Wherever the surface consists of irregular piles of jagged fragments, bristling with needle-like points, and full of deep rifts and well-like cavities, a dry thorny jungle grows, since horses cannot find foothold there, nor fire reach it. The grass is burnt every May or June, and for some months later the country is as black as a coal, but travelling is easier and is therefore usually done at this season. In some places the soil is exceedingly rich, and the population dense, especially in Melolo and Laura, but the country is everywhere dreary, and is far from green even just after the rain. The coast itself is generally uninhabited for several miles inland, owing to the depredations of the Eudinese pirates. The

* See correcting note on p. 579.

heat is terrible, but the coast seems singularly healthy, and the climate is more like that of Northern Australia than of the Indian Archipelago.

“Till I came to Sumba, no European had ever visited the interior. Learning from the natives that a well-wooded and watered tract existed inland, I pushed across forty miles of a desolate coral wilderness and reached a wholly different country. . . . The interior of the island is a great plateau, somewhat hollowed out in the middle by the river Kambera, which rises in the forests round Lewa west of Mandas, flows eastward, and near Mandas is a considerable river in deep jungle, difficult to ford, haunted by crocodiles, and much larger in volume than at its mouth, seventy or eighty miles below. Indeed most rivers of Northern Sumba tend to disappear on approaching the coast. The table-land is flat in general outline, but deeply cut by an infinity of exceedingly steep ravines, each with a clear swift stream. Flat or steep it is everywhere the richest possible meadow-land. The forests lie in great masses, and, except at Tabundung and one or two other exceptional places, they are wholly trackless, and serve as the boundaries of hostile tribes. West of Mandas the country appears to descend steeply into the Indian Ocean. This slope was described to me as covered with high forest, with a heavy rainfall and a coast so stormy as to be inaccessible during the greater part of the year. The height of the table-land of the Kambera is usually about 1500 to 2000 feet. The hill at Pada Dalung must be about 2500 feet above the sea. The climate of this region is delicious. South-east and north-west the country rises, and by its upward trend conceals whatever high mountains may be in that direction. The great isolated massif of Tabundung, covered with high forest, lies south of Pada Dalung, and must be about 4000 feet high. East of this is the unknown *tana maringu* (cold country) of Masu, which lies back of Melolo, and is sacred ground. . . . West of Pada Dalung the country rises again, and beyond Lewa Paku and the sources of the Kambera lies another ‘cold country,’ probably of considerable height and extent. West of Perwatana and Anakala, on the border of this region, which is called by the general name of Wayéwa, lies a great forest, and then comes Kodi, beyond which the land sinks precipitously into the sea near Gaura or Garu.

“A volcano has been said to exist near Tarimbang on the south-western coast, but some people of that state told me this was quite untrue. However, the mountain of Tabundung, which I did not succeed in reaching, may possibly be of volcanic origin. This district, though rather out of the way, seems to be the best accessible collecting-ground on the island.

“The upland forests of Sumba are less luxuriant than in Java or Sumatra, and are singularly free from thorns and underbrush, but many of the trees reach the height of a hundred feet, and some of the figs are of enormous girth. The only bamboos on the island occur in the dry valleys near the coast. Palms, except the *loutar* or palmyra, and a few arecas, are exceedingly scarce. The Endinese, who import coconuts, always destroy the germ of each nut, which perhaps accounts for the absence of this useful tree.

“Of the animals of Sumba I can say but little. The natives think there are three kinds of monkeys, but I saw only the *Mucacus cynomolgus*, which is very common and tame. A deer like the *Cervus muntjac* is said to be common, as well as another with large branching horns, which they call by the Malay name of *rusa*. Wild pigs abound and a wild cat. Among birds *cockatoos* are so numerous that I have seen the trees white with them!

“ Among domestic animals there are pigs, goats, fowls, a few buffaloes, cats, dogs, and pigeons. Horses are the most valuable product of the island, and ‘Sandalwood ponies’ are perhaps the best in the world, and well known as far as Rangoon and Hong Kong. They live unguarded in troops of twenty or thirty, each having its own range of pasture, the limits of which are carefully respected. Being very curious, they used to follow me for miles over all obstacles, but never dared to cross the ravine, which bounded their beat. . . . The mares are rarely ridden, and as in Sambawa are kept for breeding and for food. Only stallions are exported. The trade is wholly in the hands of the Arabs and Bugis. The Sumbanese are the best rough-country riders I have ever seen (and I have lived among the Turkman, Bedawin, and Iliats), galloping bareback down the steepest slopes. . . .

“ The staple food in Sumba is millet and maize, generally planted alternately, and rice, which is hard to obtain except on the coast. . . .

“ The people of Sumba do not probably number less than 100,000, and perhaps much more if Laura and Melolo are really as populous as they are said to be. . . .”

From Doherty's letters I extract the following notes :—

“ We did all we could in Sumba at this season (end of February and March), very badly in lepidoptera, but not so bad, I think, in birds. I think I never saw insects quite so scarce as when I left Sumba, and that in perfect butterfly-weather, heavy storms alternating with terrific heat—heat which my men found very trying, and which nearly killed me, fresh as I am from home. The terrific coral was another great trial; it tore our boots to pieces at once, and cost my men great sufferings in their long tramps. They disliked the place immensely, and that was one reason for not staying there longer. The flooded streams prevented my getting either to Tabundung or Pada Dalung, which would have probably been pleasanter places, but perhaps also no better collecting-grounds, as I could see it raining there nearly all the time.

“ We worked the neighbourhood of Nangawesi Bay at first, and then the deep valleys of Watupanu and Palukasewi in the Taimann state. The forest in the ravines is heavy, but the country very rough. There is now a regular Dutch official at Waingapu, Mijnheer de Korte, who has some influence with the nearer native chiefs. The country at Waingapu seems to become less disturbed and more civilised. They have even started the wet cultivation of rice at one place. Otherwise my old account of the island still applies, and I was wrong only in a few things. I now doubt the islanders having any Mongolian blood. The supposed bank between Sambawa and Sumba seems to be the mistake of an old chart (giving 50 and 60, in place of $\overline{50}$ and $\overline{60}$, meaning *no bottom* at 50 and 60 fathoms!). It now seems to me that there is a remarkable Celebesian element in the fauna of Sambawa and Sumba.

“ We got every bird we could hear of on the island. One of the most remarkable of the birds is a single *male* of a superb new *Ptilopus*, of the *Leucotreron* group.*

“ In parrots we did well, with de Korte's assistance—at least I cannot hear of any other species on the island. The natives know of the *Loriculus* in Flores, but strongly deny its existence in Sumba. The natives say there are two kinds of cockatoos in the island, but I saw the supposed two kinds, and they seemed exactly the same, only some being smaller, some larger. I procured only specimens of the

* *P. dohertyi* Rothsch.—E. H.

larger form. The *male* has a red eye, the *female* brown. *Trichoglossus haematodes* is probably scarcely different from the Timor form.* There is also a *Tanygnathus*, probably new, † and both sexes of a probably new *Electus*. ‡ The latter two species we did not shoot, but got them from Mr. de Korte, who received them from natives who brought them alive from the interior of the island. My *female* of the *Electus* came from Lewa, my *male* from the country back of Melolo, where the bird is said to be common. The *Electus* is sometimes seen near Waingapu, and we saw a *female* flying, but did not get it. As to the *Tanygnathus*, it seems to be very rare. The one I send was brought from some remote part of the Taimanu state, and is said to be a true mountain bird. However, most of the natives here (at Waingapu) did not know it.

“Mijnheer de Korte’s daughter Marie gave me a *Pitta* (sex not ascertained, eye said to have been rich brown), which she had stuffed herself very well. It was brought by a native from the mountains back of Melolo. I think it hardly differs much from *Pitta irena* of Timor.§

“Of *Plocidae* you will find a number of interesting species. I did not send the crow, because it is evidently, I should say, the common *Corvus macrorhyncha*,|| and was too big for my box. For the same reason I did not send the common *Megapodius*. I send two kinds of hawks. Several shore-frequenting birds and an eagle were not sent. I send two kinds of owl, but no *Caprimulgus* or *Batrachostomus* was seen or heard of. . . . There is a little lark, *Mirafra parva*, and a very lark-like wag-tail, *Anthus rufulus*, I think.¶ Its flight and habits are exactly like a skylark’s, and it is found in vast numbers over the coral meadows. I suppose it outnumbered all the other birds in the island put together. *Calornis minor* was common, but no *Eulabes* seems to be found in Sumba, but *E. veneratus* is brought over from Ende in Flores as a cage-bird. . . . No *Ceryx*, no *Woodpecker*, was seen. No jungle fowls—a pity.

“As regards the season, I was unlucky in coming in a very rainy year. When I was there before it was quite dry at Waingapu, and the butterflies were already rather *passé*, so to speak, on March 20th; this year there is no trace of the commencement of the brood on March 10th. Such is luck! . . . It seems that I formerly greatly underrated the rainfall of the Sumba coast. My idea now is that the rains are short, but rather heavy, and the desolate look of the country is entirely due to the coral crust.”

The species not formerly stated to occur in Sumba are marked with an asterisk.

1. *Pratincola caprata* (L.).

Adult *males* and *females* and young birds. The young birds have the feathers above and below dark brown, with darker edges and whitish spots before the tips.

2. *Acrocephalus australis* Gray.

Two *females* of a middle-sized reed-warbler are somewhat doubtfully referred to this species. They are certainly smaller than typical *A. australis*. The third primary is longest, the second equal to the sixth. Wings 65 and 66 mm.; culmen

* It is not distinguishable.—E. H.

† *T. megalorhynchus sumbanis* Meyer.—E. H.

‡ *E. cornelia* Bp.—E. H.

§ It is different and was named by me *P. maria*.—E. H.

|| As crows are difficult to distinguish this must remain an open question.—E. H.

¶ *A. rufulus medius* (Wall.).—E. H.

20 and 21.5; tarsus 22. "Iris grey-brown; feet slaty grey; maxilla blackish; mandible mostly pale horn, flesh-colour at base."

*3. *Phylloscopus borealis* (Blas.).

A large series shot in winter quarters.

4. *Cisticola cisticola* (Temm.).

Three specimens.

*5. *Parus atriceps* Horsf.

Evidently common on the island. ♂. "Iris deep brown; feet slaty blue; beak black, pale at commissure."

6. *Dicaeum wilhelminae* Büttik.

1892. *D. w.*, Büttikofer in *Notes Leyden Mus.* XIV, p. 199. ♂ ad. "Iris deep brown; feet black; maxilla black; mandible black, pale brown at base." Two undoubted *males* of this species.

*7. ? *Dicaeum mackloti* Müll. & Schleg.

There is a *female* from Sumba, like the *female* of *D. mackloti*, but of a paler red on the upper tail-coverts. This paler red I find in *young* birds of *D. mackloti* only, while the bird before me is evidently an adult *female*; bill black, except on base of mandible. The red upper tail-coverts make it very improbable that it is the unknown *female* of *D. wilhelminae*.

*8. *Prionochilus obsoletus* (Müll. & Schleg.).

One *male* from Sumba. "Eye pale ochraceous; beak dark grey above, pale bluish grey below."

9. *Anthreptes malaccensis celebensis* (Shell).

There is a series of specimens of this species from Sumba which I cannot separate from Celebes skins, though they should rather be *A. m. chlorogaster*.

10. *Cinnyris büttikoferi* sp. nov.

♂ ad. Above greenish olive-grey; upper wing-coverts, sides of head and neck, like the back. Throat dark glossy purplish, metallic bluish green on the sides of the throat and on the upper breast; breast with an orange spot in the middle, just below the bluish metallic colour; rest of underparts yellow. Pectoral tufts bright yellow. Under wing-coverts white. Tail black, with brownish tips, very narrow on the central, very large on the lateral rectrices. Wing 54—56 mm.; culmen 24; tail 35; tarsus 14.

♀ ad. Like the *male*, but the under surface yellow, throat pale yellow, sides of breast greenish olive.

This new species, of which Doherty sent several *males* and *females*, differs from *C. pectoralis* in having a much longer bill, in being much less yellowish above, the *male* having no metallic blue forehead, a paler abdomen, and a beautiful orange spot

on the breast. It most resembles *C. aurora*, but the *male* of that species has a broad deep orange band quite across the breast and pure white tips to the outer rectrices. From *C. frenata* and its allies it differs in having an orange spot on the breast, no indication of a pale stripe under the eye and ear-coverts and no line above the eye, and no pure white tips to the outer rectrices.

Dr. Büttikofer, in his article on the Sumba birds in *Notes Leyden Mus.* XIV. p. 201, has already described the *females* of this form, the differences of which from *C. pectoralis* struck him very much: but having no *males*, he cautiously refrained from describing them under a new name. I therefore take a pleasure in naming this bird after him.

11. *Stigmatops ocularis* (Gould).

A number of both sexes. I do not find any differences between specimens from Sumba, Sambawa, Lombok, and other islands.

12. *Philemon neglectus* (Büttik.)

Two specimens which agree with skins from Lombok and Sambawa.

13. *Zosterops aureifrons* Wall.

A fine series, exactly like the types and those from Sambawa. "Iris dull ferruginous; bill black; base of mandible and surrounding of nostrils pale corneous; feet dull slate-colour."

*14. ? *Zosterops citrinella* Bp.

One *female* with the sides of the body very pale. Further material must be awaited, for at present it seems impossible to make out whether this is an individual variety or belongs to a distinct species.

15. *Anthus rufulus medius* Wall.

The commonest bird on the island. Exactly like specimens from Lombok and Sambawa (*antea*, p. 558). "Iris dark umber-brown; maxilla deep brown; mandible, except tip, pale yellowish."

Wings 83 mm.

16. *Sporaeginthus flaviventris* (Wall.)

Two *females* and one young *male*.

*17. *Taeniopygia insularis* (Wall.)

A fine series of specimens of both sexes, agreeing with typical examples from Timor and Flores.

18. *Munia punctulata nisoria* (Temm.)

Both sexes in some number.

*19. *Munia molucca propinqua* (Sharpe).

A small series of very typical *propinqua*. ♂. "Iris deep brown; maxilla black; mandible silvery bluish grey."

20. ? *Munia quanticolor* (Vieill.).

There are some specimens which seem to differ from *M. quanticolor* in a darker beak and slightly darker rump and upper wing-coverts, but I wish to await further material from Flores and Sumba before deciding of their being distinct or not. Büttikofer had only young individuals, and apparently referred them not without hesitation to *M. quanticolor*.

21. *Calornis minor* (Bp.).

A series, quite typical. Mentioned from Sumba already by both Meyer and Büttikofer.

22. *Artamus leucogaster* (Valenc.).

Evidently common on Sumba.

23. *Chibia bimaënsis* Bp. *

Both sexes also from Sumba.

24. *Oriolus broderipi* Bp.

Some beautiful specimens, one of them quite orange.

Wing 156—159 mm. "Iris scarlet; beak purplish pink; legs slaty blue."

*25. *Lanius superciliosus* Lath.

A small series of molting individuals, evidently in winter-quarters.

*26. *Pachycephala fulviventris* Hartert.

P. f., Hartert in *Bull. B. O. C. V.* p. 47, 1896 (Latin diagnosis).

♂ ad. Top and sides of head as well as a broad band across the lower throat glossy black. Ring round hind-neck yellow. Back and rump yellowish olive-green. Upper tail-coverts black. Primaries black, outwardly narrowly margined with grey. Secondaries black with broader outer pale olive-green margins. Inner webs of quills margined with whitish grey, those of the primaries only towards the base. Primary coverts brownish black, with narrow greenish edges; other wing-coverts with broader edges of the colour of the back. Rectrices black with greyish olive tips. Throat white, enclosed by the black colour described above; chin-spot also black. Rest of the under surface orange-ochraceous, lighter along the sides of the body and on the under tail-coverts. Under wing-coverts and axillaries pale buff. Total length about 150 mm.; wing 86—88 mm.; tail 65—66.5; culmen 19; tarsus 20. "Iris deep brown; feet slaty; beak black."

♀ ad. Top of head grey; rest of upper surface olive greenish, washed with brown on the upper back, more yellowish greenish on rump and upper tail-coverts. Quills dark brown with brownish olive outer margins. Tail olive-green. Ear-coverts pale brown. Throat almost pure white; rest of under surface pale yellowish; under tail-coverts lemon-yellow. Wings 83—85 mm. "Iris deep brown; feet slaty grey; beak black."

Young birds have the crown like the back, the throat yellowish white, the quills outwardly margined with pale rufous.

There is a good series of this distinct species, the differences of which from its nearest ally, the *P. fulvotincta*, are given in the original diagnosis in the *B. O. C.*

27. *Graucalus sumbensis* A. B. Meyer.

Two specimens, both said to be *females*, of this very good species. They differ from a *male*, the type, described by Meyer in *Verh. zool. bot. Ges. Wien*, 1881, p. 765, in having the throat pale grey like the breast, not blackish, in having no black frontal line, the head grey like the back, the breast pale grey, shading off into the white abdomen, under tail-coverts white. Wings 178 and 182 mm. This species is distinct from all other known species.

*28. *Edoliosoma dohertyi* sp. nov.

Edoliosoma speciei *E. emancipata* dictae similis, sed capitis lateribus gulaque tota nigerrimis hand difficile distinguenda.

♂ ad. Above light bluish slate-grey, just a shade darker on the head and neck, and a shade lighter on the rump and upper tail-coverts. Primaries and primary-coverts black, greyish white towards the base of the inner webs. Inner primaries with small greyish white tips. Secondaries black, with outer webs broadly margined with light lavender-grey, inner webs greyish white. Upper wing-coverts light grey, darker towards the outer edge of the wing. Forehead, all the feathers from the base of the bill to the upper margin of the eye, ear-coverts, sides of head, and entire throat black, this black quickly shading off into the dark grey breast. Abdomen, flanks, and under tail-coverts dark grey. Rectrices, except the two innermost, black with grey tips, which diminish in size towards the middle. Central pair of rectrices dark grey, with broad black subterminal patches and a tiny grey tip. Under wing-coverts dark grey. Total length about 240 mm.; wing 125—126; tail 110; culmen 25; tarsus 23.

No *female* procured.

This interesting new species is, so to say, one step further in the development than the *E. emancipata* described *antea*, p. 170. While the *male* of the latter species differs from the *male* of *E. timoriense* in having black lores and ear-coverts, in this respect closely resembling the *male* of *E. amboinense*, this species has still more black, the whole throat being of this colour. Unfortunately the relations of the *female* are unknown, as two *males* only were shot.

29. *Lalage timoriensis* (S. Müller).

A large series from Sumba, exactly like those from other islands.

30. *Alseonax latirostris* (Gray).

A large series of this common wanderer from the north, with beaks rather long, viz. 16 mm. They may belong to a large-beaked race.

31. *Culicicapa ceylonensis* (Sw.).

Some rather poor skins show no differences from typical *C. ceylonensis*.

32. *Rhipidura celebensis sumbensis* subsp. nov.

Three skins, all marked "♂," from Sumba differ from *Rh. celebensis* Büttik. from Makassar (?), Djampea, and Kalao (cf. Büttik., *Notes Leyden Mus.*, XV, 1893, p. 79; *antea*, p. 173), in decidedly longer wings and generally larger size. I cannot with confidence state any constant difference in colour, but the three skins from Sumba are not very good. While the wings of the type in the Leyden Museum measure 66 mm., and those of my four skins from Djampea and Kalao 66, 67, and 68 mm., those from Sumba have wings of 72 and 73 mm. Their tails measure 90–98 mm., against about 85.

33. *Terpsiphone sumbaensis* A. B. Meyer.

T. s., Meyer in *J. f. O.* 1894, pp. 90, 93.

T. floris (partim), Büttikofer in Weber's *Reise Band III. Ornith. Samml.*, pp. 293–298 (1893).

Büttikofer separated from *T. affinis* a series of specimens from Sambawa, Flores, Sumba, and Ombay under the name *T. floris*, type from Flores. A. B. Meyer separated again *T. sumbaensis* from Sumba. Doherty sent a fair series of the latter. They are large birds, and have nothing to do with *T. affinis*. In very old *males* the shafts of the rectrices are white towards the tips and they show no black margins at all, while younger *males* have the shafts of the rectrices quite black and black edges to all the rectrices. Young *males* have also much more black on the remiges. Wings of adult *males* 100–103 mm., of *females* about 95. Having seen no specimens from Flores, I cannot judge myself of the differences between *T. floris* and *T. sumbaensis*, which seem to be conspicuous, though slight.

34. *Myiagra rufigula* Wall.

A series of both sexes. In some the beak is about one millimetre broader at base than in our specimens from Djampea and Kalao, but there is no other difference between them. "The iris is dark brown; feet black; maxilla black; mandible slaty blue with black tip."

35. *Hirundo rustica gutturalis* (Scop.).

Two *females*. "Iris dark brown; beak black; gape yellowish; feet black."

36. *Pitta maria* Hartert.

1896. *P. m.*, Hartert in *Bull. B. O. C. V.* p. 47.

This *Pitta* has been compared by me, *loc.*, with *P. irena*, but perhaps looks more like *P. vigorsii*. It agrees with that latter species in its narrow brownish stripes on the sides of the crown, which pass into a very pale blue behind, also in having a smaller white speculum in the wing, and the deep brown underside. It differs, however, from *P. vigorsii* in having the whole chin and throat black, this colour running downwards in a point. The red middle line on the abdomen is not mixed with black. From *P. irena* it differs in its deeper brown underside, its small white speculum in the wing (only a small concealed white spot on the fifth quill!), the much greater extension of the black throat, and the red on the middle of the abdomen not being mixed with black. Culmen 23 mm.; wing 109; tarsus 35.6.

One skin, not sexed, from the interior of Sumba.

Named in honour of Mevrouw Marie de Korte, daughter of the Dutch official in Sumba.

Büttikofer records *Pitta concinna* Gould from Sumba, but I do not believe that it could occur there, for the Sumba bird differs from that species in a much deeper brown underside, no black on the abdomen, a much narrower and paler superciliary stripe, a longer wing, and still smaller and concealed white wing-speculum.

37. *Merops ornatus* Lath.

(Cf. A. B. Meyer in *Isis*, 1884, p. 19, and in *Notes Leyden Mus.* XIV, p. 267.)

In one *male* there is a distinct blue spot under the black throat-patch, in the other one not.

"Iris scarlet; beak black; feet blackish."

38. *Alcedo ispida floresiana* (Sharpe).

Two *males*, Sumba. "Maxilla black; mandible with basal half red; feet coral-red, claws dark brown."

39. *Halcyon chloris* (Boddl.).

One *male*, rather blue above with a rather bluish crown. Wing 16 mm.

40. *Halcyon australasiae* (Vieill.).

One *male*, not quite adult, the breast having narrow black fringes to the feathers, the upper wing-coverts rusty edges.

41. *Eurystomus orientalis australis* (Sw.).

Several specimens from Sumba, like those from Sambawa. See p. 571.

42. *Cacomantis threnodes* Cab.

Two *males* from Sumba are very puzzling. They are large, the throat mixed brownish and greyish, below not as pale as typical *C. merulinus* and not so dark as typical *C. threnodes*. They are quite like a Lombok bird mentioned before, and closely approach *C. variolosus*, but are not so grey below, and also *C. virescens*, but seem larger and paler below, somewhat more greyish above. I refer them to *C. threnodes*, though not without hesitation. It is difficult to believe in the distribution of the species as they are divided in the *Catalogue of Birds*.

43. *Centropus javanicus* (Dumont).

One *male*.

44. *Trichoglossus haematodes* (L.).

A fine series from the island of Sumba, from where Meyer had already recorded it. They agree exactly with specimens from Timor. There is a great deal of variation in the colour of the breast and under wing-coverts; these parts being strongly washed with deep orange in some specimens, chiefly old *males*, sulphur-yellow without orange wash in others. "Iris crimson; cere and eyelids black; beak orange-red; feet dull grey."

45. *Cacatua citrinocristata* (Fras.)

Of this species, which is not with certainty known from any other island except Sumba, Doherty sent four wild shot specimens. One of them has the feathers of the underside strongly washed with deep yellow near the tips, so as to give it a spotted appearance. Wing 245—254 mm.

"Iris deep brown in two *females*, bright crimson in one *male*; eyelids partly bluish; beak, feet, and cere black."

46. *Geoffroyus tjindanae* A. B. Meyer.

With a fine series of both sexes of this *Geoffroyus* before me I find it indeed very difficult to separate it from *G. sambarensis*. In his description Dr. Meyer, guided by Salvadori's descriptions, compared it chiefly with *G. personatus*, as its yellowish green upper surface separated it at once from *G. floresianus* and *G. sambarensis*, which belonged to the group with darker and purer green upper surface. This is altogether a mistake, for I find that the Sumba birds are rather darker green than the majority of Sambawa specimens, some of which are very distinctly yellowish green. The size is of little value, but *G. tjindanae* is larger than most of the *G. sambarensis*. The latter form is said by Salvadori to be "like *G. floresianus*, only a little larger." This is very little indeed, and I am inclined to doubt the distinctness of *G. sambarensis* from *G. floresianus*, at least as a species, though the under wing-coverts of the latter are perhaps of a somewhat different, darker colour. *G. tjindanae* seems only to differ from *G. sambarensis* in a very slightly longer wing and a darker lilac bluish head, though that latter character is variable to a certain extent. Probably *G. tjindanae*, *G. sambarensis*, and *G. floresianus*—and possibly others of the genus—are only subspecifically separable, if that; but at present we do not yet know enough to place them finally, and they are better mentioned under special names.

The wings of our *male* skins measure as follows:—

Males from Sambawa (*G. sambarensis*): 159, 160, 162, 163—168 mm.

Males from Lombok (*G. sambarensis*): 160—168, mostly 160—165 mm.

Males from Sumba (*G. tjindanae*): 167, 168—174 mm.

One *male* from Flores: 159 mm. (Salvadori gives 152 only).

Of the adult ♂ *G. tjindanae* Doherty gives the following notes: "Iris very pale whitish yellow; eyelids and cere dirty brownish; maxilla orange-red, tip pale yellow; mandible mostly blackish; feet dull grey." Of the adult ♀: "Iris whitish yellow." Of the young bird: "Iris canary-yellow; beak deep purplish brown; cere earthy greenish; feet dull greenish, with a whitish powder."

*47. *Eclactus cornelia* Bp.

As mentioned before, Doherty has been so lucky as to discover the home of this *Eclactus*. Only its *female* has been hitherto known. The *female* agrees fully with the descriptions of *E. cornelia*. "The iris is pale yellow; beak horny black, with a small whitish spot on the tooth on each side; feet dull grey above and below." The *male* is above dark green, most of the feathers with lighter borders; head and neck lighter green. Primaries below and inner webs above black; outer webs deep blue, mostly with narrow greenish edges. Underside dark green; flanks

also dark green: sides of breast and upper abdomen, as well as under wing-coverts (except just on the edge of the wing), red. Rectrices from above dark green, blue towards the tip, tip yellowish. Tail black below, with dirty yellow tips. "Iris orange-ochre; maxilla orange-red, with yellow tip; mandible black."

48. *Tanygnathus megalorhynchus sumbensis* Meyer.

In 1882, in *Verh. zool. bot. Ges. Wien*, XXXI, p. 762, Dr. A. B. Meyer described from Sumba a form of *Tanygnathus megalorhynchus* which he named var. *sumbensis*. Salvadori, *Cat. B.* XX, p. 428 (1891), "greatly doubted whether the asserted locality, Sumba, given on the authority of Dr. Riedel, was correct." It was therefore of great interest to me that among Doherty's birds I found a skin of this form, collected in Sumba in February 1896. Unfortunately this skin is in a very bad condition, but Dr. Meyer most kindly lent me two of the typical specimens of his var. *sumbensis*, so that I could, with those two and the one received from Doherty, make a careful comparison of the Sumba form with skins from the Moluccas, New Guinea, Waigion, Sangir, and Talant. Salvadori, *l.c.*, states that he has "not been able to find any difference" between *T. megalorhynchus* and Meyer's var. *sumbensis*. However, I find that there are obvious differences between the two forms, and that Meyer's observations were quite correct. Meyer says: The underside is less yellow, but more greenish. This is decidedly so. Especially the breast is remarkably green in the Sumba specimens. This character varies a little, but the green breasts of the Sumba birds are very conspicuous. The under wing-coverts are less yellow: so they are. The rump is very deep blue: this is the case too, but there are specimens of *T. megalorhynchus typicus* which approach and even quite resemble the Sumba birds herein. Another character which strikes me in the Sumba specimens is the somewhat bluish tint on the back, produced by the broad blue edges to the feathers. They are very often indicated in *T. megalorhynchus typicus*, but hardly ever so distinct and broad as in the three Sumba birds now before me.

It is therefore evident that our bird must stand as *T. megalorhynchus sumbensis* Meyer. Doherty describes the iris as yellowish, with a brownish outwardly and a greenish inwardly border, the feet dull grey, beak all vermilion.

Quite recently, *antea*, p. 176, I made known the most westerly locality recorded for *T. megalorhynchus*. I may now add that, though no doubt they must be grouped with *T. megalorhynchus* and not with the Sumba subspecies, some of the specimens from Djampea stand a little between the typical Moluccan form and *sumbensis*, showing much of a greenish tinge on the breast and less bright under wing-coverts.

49. *Ninox rudolfi* A. B. Meyer.

See *Ibis*, 1882, p. 232, Pl. VI.

Two females of this beautiful owl.

Wing 225—230 mm. "Iris deep brown; cere partly bluish, partly yellowish; beak dull bluish white, commissure and tip blackish; feet dull ochreous."

50. *Strix flammea* L.

One skin, sex uncertain, above greyish; tail pale buff, with blackish bars, below

white; underside white with not very many small blackish spots. Wing 256 mm. Although of a very pale colour, this bird does not seem separable from *S. flammata typica*.

51. **Astur torquatus** (Temm.).

♂ ad. Wing 216 mm. Broad rufous collar, intermixed with some brownish grey feathers on the hind-neck. "Iris pale orange-ochre; feet ochreous; cere greenish yellow; maxilla black, laterally slaty blue at base; mandible slate-blue with brownish tip."

52. **Cerchneis moluccensis occidentalis** Mey. & Wigl.

Two *females*, both very typical *occidentalis*. "Iris dark brown; beak slaty blue, tip blackish; ceres and eyelids yellow; feet ochreous, claws black."

53. **Osmotreron teysmanni** Schleg.

Schlegel described an adult specimen, evidently a *male*, of this bird in *Notes Leyden Mus.* I. p. 103. A detailed description is given in *Cat. B. Brit. Mus.* XXI. p. 55. Doherty sent one *female* only. The pale yellow face characterises it very well. The mantle is dark green; rump and upper tail-coverts yellow-green; the shoulders greyish towards the edge. Otherwise the specimen agrees with the description of the type, which was evidently a *male*. Wing 159 mm. "Iris pale slaty grey; beak pale yellowish, base olive-green; feet pinkish purple, soles yellowish."

*54. **Ptilinopus dohertyi** Rothsch.

(Plate XII.)

This most beautiful pigeon has been well described by Mr. Rothschild in *Bull. B. O. C. N.* p. 46, and is figured on Plate XII. Only one adult *male* was procured in the state of *Taimanu*. The inner primaries of this species are on the tip as broad as in the middle, the outer web is cut off quite straightly, while the inner web is deeply sinuated. The first primary is not abruptly attenuated on the apical portion. It seems, therefore, not to fit in any of the sections of the genus *Ptilinopus*, made by Salvadori on p. 70 of his catalogue.

55. **Ptilinopus melanocephalus** (Forst.).

Quite a series from Sumba. Tip of beak and eyelids gamboge-yellow. "Iris pale yellow; feet magenta."

56. **Carpophaga aenea** (L.).

Two *females* from Sumba, resembling those from Sambawa.

57. **Turtur tigrinus** (Temm.).

Two specimens from Sumba do not differ from typical *T. tigrinus*.

58. *Geopelia maugei* (Temm.).

A good series from Sumba. ♂. "Eyes pale canary-yellow; feet purple-brown in front, slaty bluish behind; skin round eye orange-yellow; beak slaty blue."

Specimens from Sumba are like those from Sambawa. In some of them the black bars below reach farther down, nearly the whole abdomen being covered with them, but others are exactly like Sambawa skins.

*59. *Chalcophaps indica* (L.).

Common in the plains.

*60. *Tringoides hypoleucus* (L.).

One *female*.

*61. *Aegialites dubia* (Scop.).

One *female*.

*62. *Dendrocygna arcuata* (Horsf.).

♂. "Beak all black; feet dull slaty grey; eyes deep brown."

63. *Nettion gibberifrons* S. Müll.

♂. "Iris rich maroon-brown; beak pure slate-blue; maxilla with two terminal black spots, a lateral black streak at the angle; mandible with terminal third flesh-colour; feet dull grey."
